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ORIGINAL ARTICLES.

THE HEMOSTATIC USE OF GELATIN: WITH REPORT OF A CASE OF HEMOPHILIA TREATED BY GELATIN; WITH RECOVERY.[1]

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A THERAPEUTIC procedure that has been developed in France within the past four years consists in the utilization of the coagulating influence of gelatin upon the blood to secure hemostasis in hemorrhagic conditions and aneurisms. The fact that gelatin has a distinct and marked coagulating action on the blood was discovered by A. Dastre and N. Floresco, who made detailed experimental studies of the subject and reported their results to the Société de Biologie of Paris in February and March, 1896. Their discovery of the hemostatic properties of gelatin was first utilized therapeutically by Paul Carnot of Paris, who, in July, 1896, reported successful treatment of five cases of hemorrhage by the local use of gelatin. The first internal employment of gelatin recorded was made by Lancereaux and Paulesco, also of Paris, who, in June, 1897, reported successful results in the treatment of an aortic aneurism by subcutaneous injections. Since then this therapeutic measure has attracted attention in various quarters, though it has not attained widespread notice.

According to the accessibility of the point affected gelatin is used either locally or internally. As different methods are necessary and different conditions are presented, its employment in these two ways requires separate consideration.

1. *Internal Use of Gelatin.*—In cases where the seat of the hemorrhage or other lesion is not directly accessible, the hemostatic action of gelatin can be obtained only by introducing it into the circulating blood in the hope that at the affected point the desired result will be produced. Subcutaneous injection affords about the only practicable means of introducing the gelatin though rectal injection might also be of some utility. Intravenous injection would probably be too dangerous to be admissible and ingestion by the mouth is excluded, since the gelatin would be altered and its coagulant properties destroyed by the processes of digestion.

[1] Read before the Clinical Society of Washington, D. C., October 23, 1899.

As, in order to coagulate the blood, the gelatin must be present in sufficient quantity at the point affected, and as a greater amount of gelatin can be applied locally to an external bleeding point than can be brought to bear when introduced into the circulating blood, the local use of gelatin would apparently be more efficacious and certain than its internal use. For this reason, and in view of the danger in injecting gelatin, the local method is preferable whenever it is possible. Subcutaneous injection is to be employed only when, from the nature of the case, no other method of application is practicable; it is thus available in cases of internal aneurisms, or internal hemorrhages, like hemoptysis, hematuria, intestinal hemorrhage, purpura and the like.

As too great an increase in the coagulability of the blood might result in the formation of undesired intravascular clots, with possibly disastrous consequences, it is obvious that the introduction of gelatin into the circulation is not devoid of danger and not to be practiced carelessly. Gelatin may also exert a specific physiological action on the organism not as yet determined, which has to be taken into account. That the danger is real and not merely theoretical is shown by the fact that already in two fatal cases serious results are with greater or less probability attributed to the subcutaneous injection of gelatin. In one of these patients, that reported by Boinet, the clot which formed in the aneurismal sac pressed upon the pulmonary artery. This restricted the blood-supply to the lungs, and pulmonary tuberculosis subsequently developed; that the secondary development of tuberculosis in this patient can be properly ascribed to the gelatin has, however, been regarded as very doubtful, and the results were, at most, remote and indirect. In the other case that of Barth, the evil effects were perhaps more clearly due to the gelatin. This patient, a woman, with an aneurism of the arch of the aorta had received about thirteen subcutaneous injections of gelatin. Some days after the last injection, which consisted of 30 cubic centimeters of a two-per cent. solution, she was suddenly seized with dyspnea, syncope, and cyanosis, and died in collapse. At the autopsy the aneurismal sac was found filled with thick clots, which also extended beyond the sac into the left internal carotid artery.

A general agreement has not been reached with reference to dosage and administration. Lancereaux and Paulesco, basing their figures on experimental work and the results of treatment, recommend the use of a 2-per cent. sterilized aqueous solution of gelatin with .7 per cent. of sodium chlorid; of this 200 cubic centimeters is injected at a sitting; this is repeated at intervals of four to eight days until the aneurism is hardened or the desired effect is produced. Others have followed this dosage, while still others consider the amount too great. Huchard in a case of tubercular hemoptysis used a solution composed of gelatin 7, sodium chlorid 10, and water 1000 parts. The amount injected was 50 cubic centimeters. For aneurisms he employed a stronger solution, gelatin, 2; sodium chlorid, 10 (?); water, 100 parts, and began with a dose of 25 cubic centimeters and increased this to 50 cubic centimeters, the injections being made every two to five days. The gelatin used was of the best quality, such as the French gelatin commonly employed by bacteriologists.

It goes without saying that the gelatin solutions should be perfectly sterile, and that the injections should be made strictly aseptically. The solutions can be sterilized by heating at 100° C. for fifteen minutes daily for two or three days; and they then should be kept for a time to see if any growth develops in them. In sterilizing, too high a temperature (over 115° C.) should be avoided, in order to prevent deleterious changes in the constitution of the gelatin. The solution should be at the body temperature when injected. The injections are made in loose subcutaneous tissues, as in the abdominal walls or the buttock. Injection directly into the aneurismal sac has been suggested but not yet reported.

The details with reference to the dosage of gelatin for subcutaneous use, then, can not yet be regarded as finally settled. It is necessary on the one hand to employ sufficient amounts to produce the results aimed at, and on the other hand to avoid dangerous quantities. The degree of concentration of the solution is also an important point, in connection with the absorption of a substance with such physical properties as gelatin possesses. The absorbability of gelatin has been a subject of discussion. Calcium chlorid may prove to be the most useful ingredient to employ in association with the gelatin, instead of sodium chlorid, since the active coagulating power of calcium chlorid is now well known. Carnot, indeed, is extremely cautious as to the subcutaneous use of gelatin, preferring in its stead calcium chlorid, as being very efficient, safe, and capable of use by the mouth as well as hypodermatically. Ordinarily the injections of gelatin do not cause any material reaction or disagreeable consequences. At times, however, especially after the first or second injection, certain reactions may occur, which have been summarized by Deguy as follows: (1) fever, with slight rigors and insomnia, may follow for a day or two; or the injection may be followed at its site by (2) pain and tenderness, (3) a diffuse redness of the skin, or (4) induration.

The results reported from the subcutaneous injection of gelatin in various conditions are, briefly, as follows:

Aneurisms.—Lancereaux and Paulesco report results in five cases of aneurism. Two cases of aneurism of the arch of the aorta and one of subclavian aneurism were treated with succees, that is, a clot formed in the interior of the aneurismal sac, as shown by hardening, decrease in size, and cessation of pulsation of the tumor, together with relief of pain and other distressing symptoms and improvement of the general condition. In two cases of fusiform aneurism or dilatation of the aortic arch no benefit resulted. From this Lancereaux and Paulesco conclude that in fusiform aneurisms, in which there is no sac to favor coagulation, the gelatin treatment is not so efficient. Huchard of Paris treated two cases of aneurism, one successfully, the other unsuccessfully. Beck of New York reports treatment of a very large aortic aneurism with much improvement. Futcher of Johns Hopkins Hospital, Baltimore, reported treatment by this method of four cases of aneurism, three of the thoracic aorta, one abdominal, with improvement in one case, no benefit in two cases, death during treatment in one case.

Hemorrhages.—Huchard in a case of frequently recurring hemoptysis in a tuberculous patient employed gelatin injections, resulting in cessation of the hemorrhages. Lesage of Canada reports a case of habitual epistaxis and uterine hemorrhages treated by subcutaneous gelatin injections, with successful results. Hervieux of Canada reports a case of intestinal hemorrhage in typhoid fever, which had lasted four days, which yielded promptly to the injection of gelatin. Curschmann of Germany employed the subcutaneous method in fourteen cases of hemorrhage—six of gastric hemorrhage, six of pulmonary hemorrhage, one of typhoid intestinal hemorrhage, and one of hemorrhoidal bleeding, with cessation of the hemorrhage "remarkably soon" in thirteen of the cases. Arcangeli of Italy treated two cases of purpura hemorrhagica by this method, with "complete success." I find no report of hematuria (renal) treated, but gelatin might be worth trial in this condition. Jaboulay of France has suggested and practised the subcutaneous injection of gelatin prior to operations in which serious loss of blood is to be

expected, as in bleeders. He thus operated with marked results on a goiter and in an incision of a sarcoma of the breast.

2. *Local Use of Gelatin.*—The solution of gelatin mostly employed locally for the purpose of arresting hemorrhage consists of 5 to 10 per cent. of gelatin, with .6 per cent. to 1 per cent. of calcium chlorid or sodium chlorid, in 100 parts of water. This may be sterilized by heating to 100° C. for fifteen minutes daily for two or three days, avoiding a temperature much in excess of 100° C. The (10 per cent.) gelatin culture-medium used in bacteriological work can in case of need be melted and applied; pepton, which is ordinarily contained in this medium, has, it is to be noted, a distinct counteracting effect on the coagulating action of gelatin. If it is desired to make the solution antiseptic as well as sterile the usual antiseptics can be added, as .1 per cent. of mercuric bichlorid. Queyrat has suggested the addition of glycerin. When the gelatin solution is to be employed it is melted and brought just to the body temperature. It is applied by irrigation with, or injection of, a quantity, or by applying a tampon or compress saturated with it. The ordinary precautions as to asepsis are, of course, to be observed.

In addition to its hemostatic action it has seemed to some that the gelatin applied to a wound has a distinct nutritive action on the tissues and promotes the process of repair. This seems reasonable in view of the similar action claimed for the use of nutrients on wounds. On the other hand the gelatin affords a favorable culture-ground for bacteria in the wound or cavity affected; and to obviate this disadvantage, in cases where it is necessary to inject a quantity of gelatin and leave it for some time, as in intra-uterine injections, it has been recommended to add antiseptics like phenol or mercuric bichlorid, and not to leave the gelatin application too long. The use of gelatin in this manner is easy, and aside from possibly encouraging bacterial growth is perfectly safe and harmless. The method is available for use in all cases of hemorrhage, especially in hemophilia, in which the bleeding-point is accessible.

The conditions in which the local application of gelatin has been practised, and the recorded results, may be briefly summarized as follows:

Of epistaxis Carnot reports four, Siredey one, and Lesage two cases which promptly yielded to the gelatin treatment. Some of the cases were in bleeders, and were violent, persistent, and recurrent, and had resisted other treatment. In one patient with slight but continued bleeding from both nostrils following a blow on the nose I applied gelatinized tampons about four hours after the injury. The bleeding immediately ceased in one nostril, but continued in the other until the following day. Gaudier in three cases of removal of vascular tumors from the nasal fossa, followed by profuse and persistent hemorrhage, reports that the bleeding was easily checked by irrigating the bleeding-points with gelatin solution.

In gastric hemorrhages it has been urged that, on account of the action of the gastric juice, gelatin locally used would be inefficacious, but as this objection is based only on theoretical grounds it would seem that practical trial of the method would be worth making. Polyakoff reports a case in which hematemesis from a gastric ulcer, rebellious to other treatment, yielded immediately to the ingestion of 200 cubic centimeters of ten per cent. gelatin solution thrice daily.

In vesical hemorrhage, resulting from neoplasms of the bladder, Noguès reported treatment of four cases, without any favorable result.

Hemorrhoidal bleeding has been treated by local application of gelatin solution in three cases recorded by Carnot, Siredey and Lesage, with successful results.

In uterine hemorrhage the method has been employed, mostly by intra-uterine injections, also by gelatinized vaginal tampons, in thirty-two cases reported by Carnot (1), Siredey (9), Martin (1), Lachatre (20), and Bar and Keim (1). The hemorrhage was associated with chronic endometritis or metritis in fourteen of the cases, metritis with mucous polyp in one case; abortion, seven cases; fibroid tumors, six cases; cancer of the cervix, one case; laceration of vagina during labor, one case; menopause, one case; unknown cause one case. In all the cases except that due to menopause the treatment was successful and the hemorrhage definitely checked. Dalché also reports a case treated by gelatin in which a voluminous intra-uterine clot formed and caused much trouble, being expelled only with pain and difficulty.

In hemorrhage from superficial wounds Carnot and others have noted the efficiency of gelatin solutions locally applied by irrigation or by compress. Of course it would only be in exceptional cases of this kind, as in hemophilia or where ordinary means of hemostasis fail, that recourse to gelatin would be necessary.

I have had one case of hemophilia, in which profuse hemorrhage from an accidental wound ceased immediately upon the use of gelatin, which is here given in detail:

F. M., a dairyman, twenty-four years old, with a negative personal and family history and no history of hemophilia, on November 11, 1898, accidentally cut his right wrist and forearm on broken glass, ap-

parently while under the influence of alcohol, and was immediately brought to me. The wounds had bled very profusely and the patient was weak and excited. There were two wounds, one about four centimeters long on the anterior aspect of the right wrist, on the ulnar side, no tendons, large vessels, or nerves being found severed; the other about six centimeters long on the posterior ulnar aspect of the right forearm some eight centimeters above the wrist, in which an extensor tendon was partially divided. The wounds were cleaned, the divided tendon sutured with catgut, and the skin closed with horsehair; no vessels were ligated, bleeding being apparently checked by hot compresses.

The wounds were first redressed three days later, November 14th. They had been very painful and had bled freely into the bandages. On removing the dressings a jet of blood spurted at right angles from the wrist wound to a distance of a meter or two. This bleeding was checked by pressure and a dressing snugly applied. They were next dressed three days afterward, November 17th, at 2 P.M. The edges of the anterior wound were softened and necrotic. The posterior wound was apparently healed, except for some necrotic or purulent discharge at one end, and the stitches were removed from it. A rather loose dressing was applied. Pain and inability to sleep had continued, and the patient was pale, weak, and exhausted. Three hours after this dressing was put on the patient returned with the dressings completely saturated and dripping with blood, profuse hemorrhage having occurred; a new dressing was tightly applied.

During the following night and forenoon extremely profuse hemorrhage occurred repeatedly, saturating the dressings, bedding, and clothing with blood, and the patient was nearly exsanguinated. At 2 P M. November 18th, seven days after the original injury, I examined the wounds and found both widely gaping and filled with blood-clot and broken-down tissue; blood was persistently oozing from the wound at the wrist, and the entire forearm was cold, blue, clammy, and much swollen. Although fairly certain that the case was one of hemophilia, I made a thorough search for bleeding vessels in the wound at the wrist, under chloroform, in order to be assured that the trouble was not due to primary or secondary hemorrhage. Incisions radiating from the edges of the wound were made and flaps turned up to expose it to its depths. The tissues were completely saturated and infiltrated with clotted blood, and the different kinds of tissue, ligaments, tendons, muscles, etc., all looked alike and were quite indistinguishable from one another; they were soft and friable, and tore easily in the forceps. No bleeding vessels were found, though several catgut ligatures were inserted deeply and tied. The bleeding seemed to consist of a general oozing, and was not checked even by the tourniquet. In view of recent results reported from the use of gelatin in hemophilia, a bacteriological culture-tube of sterile ten per cent. gelatin was melted and poured into the wound, after suturing the new incisions, iodoform gauze was packed in, and the wound dressed. Ergot was also ordered, a teaspoonful of the fluid extract, three times a day.

Little hope for the patient's recovery was entertained, and further hemorrhage would undoubtedly have proved fatal. From this time, however, an unexpected and most happy change in the course of the case took place. No more bleeding occurred, the pain disappeared, the patient became comfortable and was able to sleep. The wound was dressed November 20th, two days after the application, and was found in a highly favorable condition. The swelling and cyanosis of the forearm had entirely subsided, it was warm and rosy and its circulation good. The ecchymotic and broken-down tissue in the wrist had undergone liquefaction necrosis and been absorbed into the dressings, leaving a nicely granulating ulcerated surface four or five centimeters in diameter. It was again dressed with gelatin, as before, and the ergot continued two days longer.

Henceforth the case followed the course of a healthy granulating ulcer, uninfected, and was treated in the ordinary manner. Early movement of the fingers was insisted on, and in five weeks the ulcers entirely healed, with motion and sensation of the fingers practically unimpaired.

In this case a hemorrhage which had been violent and uncontrollable for a week ceased immediately and in the most marked manner upon the application of gelatin, the administration of ergot, and the performance of an operation which apparently accomplished nothing. The result is probably to be attributed to the gelatin. The rapid improvement in the condition of the wound is also perhaps in part attributable to the local nutritive action of the gelatin.

In conclusion, it is perhaps too early as yet to fix a final estimate of the value of the hemostatic use of gelatin, but if such successful and remarkable results can be constantly obtained as have been claimed by some observers, it is certain that the agent would be of great value in the treatment of some very serious and intractable conditions. No claim has been made that gelatin is a specific in any class of cases, nor that it should supersede ordinary methods of hemostasis. In cases which resist other methods of treatment, and such cases are usually very serious and even desperate, gelatin offers some hope, if only a forlorn hope, of success. If only a portion of cases of hemophilia, which is such an appalling and disastrous complication, or of inoperable aneurisms, the treatment of which heretofore has at best been uncertain, yield to this agent, any proportion of lives thus saved, however small, will be ample justification for the use of gelatin.

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MICROBES AND COLD.*

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THE question of the resistance of microbes to cold has been discussed by most writers on bacteriology. It is to an American scientist that we owe the best work on this subject. Professor Prudden[1] deduced from his investigations of the growth of microbes in vessels surrounded by snow certain scientific principles which have not lost their value, and which may serve as criteria that will enable us to judge of the vitality and development of microbes at low temperatures.

In order to arrive at rational and exact conclusions, it is necessary to conduct our experiments as far as possible in such a way as to imitate the conditions found in Nature. Unfortunately Nature very jealously guards the secret of the methods by which microbes live and develop and succeed in invading organisms of a higher type; and it is impossible to reproduce in the laboratory the conditions presented in the production of disease. It is, for example, absolutely impossible to reproduce experimentally all the biological vicissitudes to which pathogenic microbes are exposed in sea-water or in potable water. The chemical constitution, the presence of organic substances suspended in the water, its movement, the variations of temperature, and the influence of light and air, the effect of the coexistent aquatic flora, the quantity, the age, the source, and the vitality of the species of microbes which occur in the water, are all conditions impossible to reproduce. It is nevertheless certain that every one of these conditions has its special influence on the micro-organisms contained in the water.

Prudden and Fraenkel[2] found in falling snow thousands of bacteria. Odo Buiwid demonstrated in hailstones a very large number of micro-organisms identical with those isolated from the soil of the locality in which the hail fell. On the other hand, Dr. Lewin of Stockholm in a recently published monograph detailing a series of investigations made during an island tour near Spitzbergen, announces that he found very few bacteria, not only in the snow of that region, but also in the intestines of a number of animals which he killed and examined on the spot. The intestine of a white bear proved, even after careful examination, to be completely sterile as far as bacteria were concerned. These results agree perfectly with the excellent hygienic conditions which prevail in these islands, for in them the ordinary maladies of the temperate region are almost unknown. The variations of temperature at that high degree of latitude are very sudden, and it is a well established fact that coryza, bronchitis, pneumonia, and the ordinary infectious intestinal diseases are quite unknown.

When we consider that Prudden found that the typhoid bacillus survived an exposure on the snow of 113 days, we can only arrive at the conclusion that while it may be true that cold can delay the development of microbes, permanently acting low temperature is necessary to deprive them of life. The factor which most of all brings about this destruction of microbes in very cold climates is the fact that the nutritive media

*Translated.

from which they normally derive their sustenance are so modified by extremely low temperatures as to no longer furnish them with the means of existence. The prolonged continuance of this state of affairs brings about the death of the bacteria. They may remain dormant for long periods, however, before death finally takes place.

The conclusions that may be drawn from these facts are applicable in epidemiology. In countries where the cold is intense and continuous for lengthy periods it influences not only the vitality of the microbe itself, but also all the substances that might supply it with nourishment. Hence it is very difficult to have a repetition of an epidemic in a cold climate even during the warmer weather which follows the intense cold. The exceptions to this rule demonstrate only the possibility of the continuance of microbic life despite the prevalence of low temperature. This possibility can be demonstrated as an absolute fact when microbes are transferred from the natural media on which they grow to artificial media.

Microbes require practically the same elements for life as plants of a higher order demand. Not only must conditions of temperature be favorable, but the soil to which the plant is transferred must be good, the transplantation must be carefully done, and a sufficient quantity of suitable nourishment must exist in the new soil. These last conditions are more important, as far as life is concerned, than temperature.

I do not wish, however, to be set down as expressing the opinion that the results which may be deduced from the study of epidemics are always constant. Hirsch seems to have established, and in this he is in agreement with practically all the observers on this subject, that the development of the germ of yellow fever occurs only between 22° C. and 25.5° C. (71° F.–76° F.), was not able to find any exception to this rule, except the epidemic at Georgetown in Guiana in the year 1852, the development of which coincided with a temperature of 19.8° C. (67.6° F.). In spite of this law that Hirsch considers to have practically no exception, the *Siglo de Montevideo*, a daily paper published in the capital of Uruguay, announced on the 8th of last June that cases of yellow fever were occurring at that time in Buenos Ayres in the Argentine Confederation. The wording of the announcement is of special interest. It says:

"With reference to the spread of cases of yellow fever in this city, while the temperature is little less than Siberian, it may be said that we have in this fact a phenomenon which completely refutes all the theories and opinions so far entertained with regard to yellow fever. Its occurrence during such cold weather has been the source of a great deal of surprise to scientific medical men." It will scarcely be necessary for me to add that Buenos Ayres is situated between the thirty-fifth and thirty-sixth degrees of south latitude, and that as a consequence the month of June there corresponds to our month of December. Likewise Dowler[5] makes the statement that in the epidemic of yellow fever in Northern Louisiana in the year 1853 he did not observe the slightest variation in the progress o. the disease in a number of places despite the fact that frost was almost constantly occurring during the nights. Fenner of Mobile[6] relates that in the same year, though there was a severe frost on October 31st in New Orleans, he observed, nevertheless, a number of cases of yellow fever which occurred among people who had returned to the city from the camps after they thought all danger was over. In Memphis in 1878–79, in Cadiz in 1800 and 1801, in Malaga in 1808 and 1809, epidemics of yellow fever occurred two years in succession without having been imported.

But these, of course, are exceptions. The real question of interest for us consists in finding out whether microbes can exist at low temperatures. It is admitted by everyone that their reproduction and development are practically impossible during exposure to severe cold. Sternberg and Novy have made a deplorable error in this matter in not distinguishing between arrest of development and the death of microbes. When cold causes an epidemic to cease who can calculate how many days, or how many weeks, or how many hours even, the germ may continue to live? It would be absurd to claim that a microbe was dead simply because an epidemic had ceased. For instance, in the northwest of Hindostan and in the Punjab, cholera always ceases to be epidemic during the winter, yet frequently is aroused to epidemic activity the following spring. At Memphis the epidemic of yellow fever ceased completely during the winter of 1878, and yet broke out afresh in the spring of 1879.

But when we pass from the field of Nature to that of experiment the problem of microbic life is very much modified. We do not know the method by which Nature supplies micro-organisms with the organic substances necessary for their nutrition, nor how she supplies them with light and air. One thing is certain, our artificial media compel microbes to live a life quite different from that which they live in Nature. It is for that reason that all bacteriologists recognize as a law in biology the principle that may be stated about as follows: When micro-organisms pass from natural to artificial media they always undergo more or less important modifications. As an

example of this law may be cited the virulence which a microbe may acquire, though it did not possess it when first isolated. The typhoid bacillus furnishes a good instance of this. It does not possess great virulence when first isolated from the cadavers of those who have died from typhoid fever. When grown on artificial culture media it is but moderately pathogenic, but acquires distinct virulence later on. The bacillus of the plague, when first isolated from the cadaver and grown in bouillon cultures is virulent even when taken by way of the digestive tract. But after two or three passages through animals it loses some of its virulence, no longer produces the disease when taken by way of the digestive tract, and causes symptoms of the disease only when administered subcutaneously or intraperitoneally. It may be added, however, that microbes undergo modifications not only as to their pathogenic manifestations, but also with reference to the resistance which they ordinarily offer to various inhibitory influences, both physical and chemical.

Cultivation in the ordinary media makes great differences in the vital resistance of microbes. The biology of the gonococcus furnishes a very convincing proof of just this fact, since its failure to resist external agents, and especially low temperature, depends on the extreme difficulty of accustoming it to grow on artificial media. It will not be out of place since this microbe has been quoted as one of those that offer very little resistance to low temperatures to review a little of its life in the laboratory.

Wertheim employed a mixture of human serum with serous fluid, which remained liquid at 40° C. Christmas, after having tried all the albuminous liquids that could be obtained from human beings, the serous fluid of ascites, of pleurisy, and a number of other animal serums, found that the serum of the rabbit was the best nutritive medium on which to grow it. The microbe develops abundantly, but does not remain alive more than three or four weeks, though sometimes it has been kept alive for two months after inoculation. The best results have been obtained in liquid culture media employing ascitic fluid with three parts of peptone bouillon. Glucose may be a useful addition to the medium, but must not be added in more than a proportion of one per thousand. In this mixture the gonococcus develops, but the development does not begin until the second or third day at 38.5° C. (101.3° F.) and proceeds gradually until the seventh or eighth day at which time development is complete. If from this first liquid-culture, however, one wishes to make a second inoculation it does not succeed, that is to say, the microbe will not permit a passage from the first tube where it has developed to a second one.*

The transference of the gonococcus when taken from the urethra and inoculated on serum requires special precautions. The pus should be evenly spread on the surface of the coagulated fluid and not a moment must be lost in placing the tube immediately in the brood-chamber, otherwise the organism will not develop. Even under these circumstances it develops only between 32° C. and 38.5° C. (89.6° F.–101.3° F.). If the temperature is below 32° C.; or above 38.5° C. no development takes place. The inoculated gonococci die in a few hours at 15° C. (59° F.). That is to say at 59° F., not at 15° F., as Dr. Novy wrote erroneously.

This brief review of the bacteriology of the gonococcus shows that it is absurd to quote this microbe as an example of those which do not resist cold. Its extreme delicacy under ordinary circumstances, which permits it to live only for a few days even on its favorite culture media, human and rabbit serum, show that it is almost as absurd to talk of the vitality or resistance of the gonococcus as it would be to talk in the same manner of the spirillum of Obermeier, for which, as is well-known, we have as yet no successful culture medium. Besides it must be remembered how readily the pathological liquids on which the gonococcus is grown become modified by circumstances, for this tendency has an important influence on the vitality of the gonococcus.

Let us apply the biologic law mentioned above to the microbes of two diseases which are almost absolutely endemic in tropical regions, the vibrio of cholera and the bacillus icteroides. Let us suppose for the moment that neither cholera nor yellow fever has ever made its appearance during a cold season. When the bacillus icteroides and the vibrio of cholera are first isolated from the cadaver they do not easily adapt themselves to life in bouillon. It is only after a time that they acquire an adaptation to artificial culture media. The first inoculations in bouillon always give very sparse growths. Later, however, both bacilli adapt themselves to the artificial media; cultures in bouillon may be obtained regularly and considerable cloudiness showing abundant growth always results. Their conduct during this process of adaptation to artificial media shows that both microbes are possessed of considerable resistive vitality. It is true they may lose some of their virulence during the process, for it is to be remembered

* Dr. Heiman's researches in this country with reference to the gonococcus are a very interesting confirmation of the facts already known as to the extreme delicacy of the gonococcus when grown on artificial media. The detailed account of his work will be found in the *Medical Record* for June 22, 1895, December 19, 1896, *et. seq.*

that the virulence of a culture may be in inverse proportion to the activity displayed in development.

I brought with me from Montevideo some tubes containing cultures of the bacillus of Sanarelli. Of these, two proved to be sterile as far as further inoculation into bouillon or upon agar were concerned. Two of them, however, gave very abundant growths in bouillon, but the specific virulence of the microbes was practically nil. A rabbit inoculated with 1 c.c. of culture lost but 300 grams in weight in eight days and then began to recover. When the microbe was first isolated from the cadaver of a patient dead from yellow fever it was extremely virulent and it required but a very small quantity to kill a rabbit in from two to four days, for the rabbit is very sensitive to the bacillus icteroides as a rule. As a consequence it is possible that, despite the fact that neither cholera nor yellow fever may ever have made their appearance during the winter time, the germs of these diseases may adapt themselves to life on artificial media and possess under the new biologic conditions a resistive vitality that they do not possess when grown on natural media.

Besides this it is far from scientific to expose a microbe to cold when grown in a tube of bouillon or agar and then argue as to its vital power. Practically this would be same thing as to expose a tropical plant to cold under such artificial conditions that it is well protected from cold. An argument founded on such fallible experimental observations would have as little weight as the personal experiments performed by Dr. Chervin in 1816 at Pointe-a-Petre in the Antilles. Dr. Chervin drank large quantities of the black vomit from yellow-fever patients and for some time wore their clothing; as he did not contract the disease he drew the conclusion that yellow fever was not contagious.

The serious scientific observations which have been made with reference to microbes and cold seem to have been completely lost upon those who would demonstrate that the bacillus icteroides is not the cause of yellow fever because it continues to live in spite of exposure to low temperatures. Too many insoluble problems are connected with this intricate question of the behavior of microbes to cold to allow it to be used as a simple criterion by which to judge of the pathogeneity or non-pathogeneity of a given micro-organism. Those who found their arguments upon this behavior to cold, seem to have lost sight of certain physical laws regarding the action of refrigeration on organic substances generally. Besides they do not seem to have recognized the fact that a symbiosis of microbes with certain parasites of a higher order may lead to a prolongation of life under unfavorable circumstances. They seem also to have confounded living with the power of propagation, etc.

In this matter a look at the exact period in which various epidemic affections begin to develop and are arrested in a certain focus of disease will prove very interesting. As a matter of fact epidemics of yellow fever begin in Rio Janeiro usually in the month of February; in Havana the month in which most cases of the disease have usually occurred has been September. In New Orleans and Charleston most cases occur from August to November. In other words, it is necessary that the warm weather should first, for a time, elaborate the nutritive materials which are necessary for the development and for an increase of virulence of the micro-organisms. It is only after this has occurred that the germ of yellow fever becomes sufficiently increased in virulence to invade the human organism. If temperature alone were the only factor on which its power to attack human beings depended, then, at Rio Janeiro the epidemics would begin as a rule in November or December. In Havana, June would be the worst month for the disease and it would be about the same time of the year that epidemics in New Orleans would be at their height.

From these facts I think we can deduce the conclusion that all microbes offer resistance to temperature that bears a certain relation to the medium in which they live and that this relation varies not only for low temperatures, but also for temperatures above the normal. Chamberland demonstrated in a two-branched Pasteur tube that the spores of bacteria exposed to boiling temperature offered a resistance to heat which varied according to the nutrient medium in which they were placed. In liquid yeast, for instance, spores of bacteria remained alive for five hours after boiling. In a hay infusion they also remained alive for five hours, in a Liebig bouillon solution they remained alive but for three hours, in must of grape that had been carefully neutralized they were killed by boiling in half an hour. In a nutritive solution whose acidity was more than two per thousand bacteria remained alive at a boiling temperature for only ten minutes.

In conclusion then we may say that the temperature exerts an influence on microbes which bears a direct relation to the media in which they are being cultivated, and the resistance they offer is just so much greater as the media on which they live, whether they be natural or artificial, are favorable to the vitality of the microbes.

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[5] Dowler (Louisiana).
[6] Fenner (New Orleans).
[7] Bryant (Louisiana) is quoted as to the influence of low temperature by Jaccoud in his "Pathologie Interne." He quotes also Keraudren, Bertulus, and Drake.
[8] Davidson, "Hygiene and Disease of Warm Climates." Edinburgh and London, page 287, 1893.
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EXAMINATION OF THE BLOOD IN SURGICAL DISEASES.[1]

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ALTHOUGH this branch of physical diagnosis has been known but a few years it has advanced with such rapidity that it has now reached the position of an important, often indispensable, method. Not only in surgical diseases, of which this paper is a partial review, but in medical practice also is found a field even wider and of greater practical application, concerning which another paper is to be read at a subsequent meeting. The enumeration of the red corpuscles can be but briefly mentioned, as the subject could well occupy the entire paper, and I will but call attention to the variation in their number occurring after hemorrhage. Immediately following the loss of considerable blood little change in the blood elements will be noticed as the loss has been general and the proportions remain the same. Within an hour, however, fluid begins to enter the vessels from the tissues, greatly diluting the serum but producing more volume for the heart to contract upon and thus raising the blood pressure. This dilution of the serum of course produces a corresponding diminution in the number of red corpuscles (the white, as we shall see later, are not decreased). A count, therefore, in a case of hemorrhage will show a decrease in the number of red cells to even as low as one or two million per c.mm., whereas the normal is about five million. It is readily seen how valuable such evidence may be in the diagnosis of a hemorrhage into closed cavities.

In connection with the same emergency (hemorrhage) the value of estimating the hemoglobin present may be considered as this substance diminishes proportionally with the diminution in number of the red cells. Attention might be then called to the attitude of the well known surgeon Mikulicz, who is so fully convinced of the value of blood analysis that he has formulated the rule: never operate on any case when the hemoglobin is below thirty per cent. This is applicable to all cases where this reduction in hemoglobin is found and not to those of hemorrhage only.

The white corpuscle or leucocyte is at present receiving a very great amount of attention from pathologists. Its prominent local activity in all inflammatory conditions has been thoroughly recognized, since the researches of Metschnikoff, Buchner, Massart and others, but concerning its actual utility either in an area of inflammation, or in the circulation in certain inflammatory disturbances, there is still some dispute. It seems more than likely, however, that it is the function of the leucocytes to produce some material concerned in counteracting the toxins produced during the disease. The orginal theory of Metschnikoff that "inflammation is a combat waged by the cells against intruders or disease producers," has undergone some modification; as Ziegler says "such a manner of characterizing the phenomena of phagocytosis amounts simply to a poetical way of expressing one's self and does not do justice to the essential facts." However, no matter what the functions of the colorless corpuscles may be, it is certain that in various diseases their enumeration affords opportunity for both differential diagnosis and prognosis. The leucocytes are normally present in the peripheral circulation in the proportion of from six to nine thousand per cubic millimeter, and any temporary secondary increase is spoken of as a leucocytosis. In all cases of inflammatory disturbance accompanied by pus formation leucocytosis is an invariable accompaniment (except in a few instances to be mentioned further). The suppurative process may be acute or chronic, deep-seated or superficial, encapsulated or diffuse, but the leucocytosis is present. Before detailing some of the conditions where the application of this fact is of practical importance some general laws should be cited. (1) The leucocytosis is not confined to the area involved in the inflammatory action. It is found throughout the peripheral circulation. (2) Pathologic leucocytosis must be differentiated from the normal digestive leucocytosis, which commences about one hour after eating and continues for two to four hours, depending upon the rapidity with which digestion takes place. It is therefore best when examining the blood to count the leucocytes just before or just after a meal. The preferable time is just before breakfast. (3) Leucocytosis occurs in the majority of cases of pregnancy during the last five months. (4) As a rule pathologic leucocytosis is in excess of what a physiologic leucocytosis would be, in the latter the white cells rarely exceeding twelve or fourteen thousand to the cubic milli-

[1] Read at the Annual Meeting of the Medical Society of Virginia, held at Richmond, October 24, 26, 1899.

meter. The reliable method of differentiating in doubtful cases lies in choosing the proper time for the examination.

Among the more prevalent and important diseases in which leucocytosis is found the following may be mentioned.

Abscess.—Whether the accumulation of pus be of recent origin and accompanied by acute inflammatory disturbances or is chronic ("cold"), the increase in the number of leucocytes still holds good. The presence of pus is revealed by the blood-count, and neither the thickness of the abscess wall nor the pressure under which the pus is elaborated seem to influence the number of leucocytes. The presence of leucocytosis begins with the formation of pus and increases with it. Leucocytosis is not always proportionate to the amount of pus present; the writer has counted the leucocytes in a case of a small abscess on the back of the hand and found 27,000 to the cubic millimeter, while in a case of purulent appendicitis there were 17,000 to the cubic millimeter. This may appear at first glance to detract from the value of the count, but such is not the case. In both cases the blood examination proved the existence of pus, and taking each case separately we would find a leucocytosis varying as the amount of pus increased and diminished. As a matter of fact, the amount of leucocytosis is due, not so much to the mere presence of pus as to the resisting power of the patient.

Abscess of the liver may be affirmed or excluded by counting the leucocytes. The deep-seated nature of this trouble often is a serious obstacle to a correct diagnosis by physical examination and many diseases may simulate it, such as malaria, duodenal catarrh and impacted gall-stones. In case No. 10 the diagnosis was confirmed by blood count, while on another occasion (case No. 11) a negative diagnosis was also confirmed by further examination. Not infrequently in laparotomies performed for the removal of suppuration foci a temperature will develop on the second to the fifth day which may be due to reinfection, impaction of feces, or malaria. The existence of a pocket of pus (case No. 22) is readily determined by counting the leucocytes.

Appendicitis.—In this disease more than in any other has the value of a leucocyte count been demonstrated, and the majority of surgeons regularly make blood counts in suspected cases. The leucocytosis of appendicitis varies, in a measure, according to the form and amount of inflammation. In simple catarrhal appendicitis the leucocytosis may be absent or very slight, depending on the amount of inflammatory reaction which has occurred in and about the wall of the appendix, while in purulent and gangrenous appendicitis the number of leucocytes is always increased, often to a marked degree. The fact that leucocytosis is not constant in catarrhal appendicitis is by no means an objection to the method, as surgical intervention is not indicated in this form during the attack (case No. 6). As the disease progresses, however, with resulting pus formation or gangrene, leucocytosis appears and is a reliable index to the advance of the disease and the necessity for immediate surgical intervention. Hence it will be seen that this point may be of very great value in diagnosis, differential diagnosis and prognosis. It detects the advance of a case from the simple catarrhal form to the purulent or gangrenous, *i. e.*, from the non-operative to the operative; and in the latter form it shows the true progress of the disease irrespective of prominent symptoms, which are too often misleading (case No. 4). The greatest practical applicability of this method will be found in the differential diagnosis of appendicitis.

Diseases which often simulate appendicitis, such as hepatic or renal colic, intestinal colic, intestinal obstruction (without gangrene), fecal impaction, typhoid fever, nephralgia, floating kidney, ovaralgia, old adhesions (quiescent), and tubercular peritonitis, are all readily differentiated by their failure to cause leucocytosis. Three times has the writer decided against appendicitis in cases which subsequently proved to be typhoid fever (cases No. 1, 2, 3), and on one occasion a diagnosis of impacted gall-stones was suggested in a case where appendicitis was suspected (case No. 7).

Pyosalpinx.—This disease is frequently met with and has to be differentiated from, a prolapsed and inflamed ovary, ovarian neuralgia, ectopic gestation, small extraperitoneal hematoma or inflamed fibroid. The diagnosis is usually easy (cases Nos. 19-20), as any pelvic lesion attended with leucocytosis is almost certainly a pus tube or other localized collection of pus.

Osteomyelitis.—Patients with suppurative disease of the medulla of the bone who have been treated for considerable periods of time for "rheumatism," neuralgia, or even thought to have typhoid or malaria have been met with by most physicians, and often the diagnosis has been made only when pus has risen to the surface and "pointed;" a time when surgical intervention is practically powerless to effect any relief. Indeed such cases are not always readily diagnosed even by expert clinicians. The persistence of the disease, however, should arouse suspicion, and in cases of osteomyelitis a blood examination will always reveal a marked leucocytosis unless the osteomyelitis be tubercular (case No. 18).

Tuberculosis.—This disease appears to the surgeon in many disguises and the question of the tubercular or non-tubercular character of a case often assumes a serious aspect. Fortunately, in pure tubercular lesions, whether accompanied by pus formation or not, there is no leucocytosis; indeed there is little change in the blood Should a tubercular knee-joint, for instance, become infected with pyogenic micro organisms, the leucocyte count at once rises. In a case of cervical glandular enlargement with fluctuation, absence of leucocytosis established a diagnosis of tubercular abscess which was confirmed by subsequent examination of the pus (case No. 17).

Shock.—The question is often an anxious one to the physician and surgeon whether a given case of shock is due to concussion or compression or to hemorrhage. If the case be one of shock of nervous origin, the blood will show no change, while in the shock of hemorrhage we find the red corpuscles reduced, as already mentioned, and the leucocytes increased. This leucocytosis commences within an hour or so after hemorrhage has occurred and persists for days, sometimes weeks. The value of this fact can hardly be overestimated when we consider how frequently the question of the advisability of employing transfusion arises. The old method of judging the appearance of the patient has proved itself sufficiently unreliable, in addition to its being unscientific. Cabot[1] says "The right decision of this question is of great importance, for if the 'shock' means anemia, transfusion may be indicated, while, in a condition of cerebral concussion or compression transfusion will probably do harm."

These are but a few of the diseases in which a blood-count is often applicable and I doubt not that the value of this method is recognized by all. From fifteen to thirty minutes of bed-side work may be done, and the result is, that many an obscure case is cleared up, or a prognosis can be made which will relieve the strain of both physician and friends. The following are some cases selected from the writer's work during the past year or so, bearing more or less directly on the diseases mentioned in the body of the paper:

CASE I.—Male, adult, indefinite abdominal symptoms referable to either typhoid or appendicitis; leucocytes, 7300; case ran a typical typhoid course.

CASE II.—Male, child, case thought to be appendicitis, operation advised by consultant; leucocytes, 6800; diagnosis of typhoid confirmed by Widal's test.

CASE III.—Female, seventeen years; sick one week; all symptoms referable to right side; leucocytes, 6100; diagnosis, typhoid fever.

[1] "Inter. Text-Book of Surgery," vol. I., p. 81.

CASE IV.—Male, adult; appendicitis; symptoms of abscess; leucocytes, 19,600. Twenty-four hours later temperature, pulse, and general condition better; leucocytes, 22,000; next day symptoms still improving; leucocytes, 27,000. Operation urged, as abscess was believed to be increasing in size; on operating found necrotic appendix, in abscess cavity containing nine ounces of pus.

CASE V. — Male, thirteen years; leucocytes, 31,200. Gangrenous appendix found.

CASE VI.—Male, adult; appendicitis diagnosed. Question of advisability of operating, as symptoms of pus formation, high temperature, chills, etc., were present. Leucocytes, 9600. Catarrhal appendicitis diagnosed. Ten days later operation showed appendix surrounded and bound down by many adhesions; no pus.

CASE VII.—Female, adult. Appendicitis suspected. Leucocytes, 7400. Further search showed impacted gall-stones.

CASE VIII.—Male, twenty-nine years. Appendicitis diagnosed in preceding attacks; present attack a mass is felt in right lumbar region. Leucocytes, 7000. No diagnosis made other than that surgical intervention was necessary. Operation showed obstruction due to old adhesions; appendix normal.

CASE IX. — Female, adult; symptoms of obstruction of gall-bladder. Leucocytes, 14,000. Operation showed empyema with impacted gall-stones.

CASE X.—Male, adult; symptoms of fever, chills, sweats, and nausea. Leucocytes, 17,200. Diagnosis, hepatic abscess. Operation showed large abscess of right lobe.

CASE XI.—Male, adult; supposed case of hepatic abscess. Leucocytes, 6800, excluding pus. Subsequent examinations revealed abdominal aneurism.

CASE XII.—Female, adult; leucocyte count of 31,000 established the diagnosis of mammary abscess.

CASE XIII.—Female, adult. The clinical symptoms of appendicitis with abscess formation were corroborated by a leucocyte count of 16,000.

CASE XIV.—Female, child. Case was being treated for malaria, and while examining for plasmodium a leucocytosis of 24,000 was found. Further search revealed purulent appendicitis.

CASE XV.—Male, child. Case of peritonitis, tuberculosis suspected. Leucocytes, 19,300. Tuberculosis thereby excluded.

CASE XVI.—Male, adult. Leucocytes, 28,700. Pus somewhere was diagnosed three days before a perinephritic abscess was discovered.

CASE XVII.—Female, child. Enlarged cervical gland with fluctuation. Leucocytes, 6200. Diagnosis, tubercular abscess.

CASE XVIII. — Male, adult. Case was being treated for muscular rheumatism, and blood examination was asked for to detect indications of malaria. The leucocytes were found to be 20,600, and the suspicion of osteomyelitis was afterward confirmed by operation.

CASE XIX.—Female, adult. Pus tube suspected

from examination of tumor. Leucocytes, 8000. Diagnosis, inflamed ovary, confirmed by progress of case. Patient made rapid recovery under appropriate treatment.

CASE XX.—Female, adult. Pus tube suspected. Leucocytes being only 7900, pus was excluded. Case proved to be prolapsed and painful ovary.

CASE XXI.—Male, adult. Thrown from horse, badly bruised. Leucocytes being 9100, red cells 4,700,000; a diagnosis of concussion was made, which proved correct.

CASE XXII.—Female, adult. Laparotomy for pus tube. On fourth day temperature was 101° F., and patient had a slight chill; wound healthy. Leucocytes, 23,700. Pocket of pus diagnosed and confirmed by vaginal examination. Vaginal drainage released an ounce of pus and relieved all symptoms.

422 WEST MAIN STREET.

CLINICAL MEMORANDUM.

LOSS OF INTESTINE AND ITS EFFECT ON THE NUTRITION.

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NEARLY five years ago I reported[1] a successful case of intestinal anastomosis after the loss of two and one-half feet of intestines. A few years ago it was held that the loss of more than a few inches or a foot of intestine would certainly prove detrimental to adequate body nutrition, but the following list adapted from a paper on the subject by Professor Francis J. Shepherd[2] shows the possibilities of recovery:

	Operator.	Total Loss	Nature of Lesion.	Time After Which Health was Still Fair.
1	Ruggi	130 inches	Multiple Stricture	Two years
2	Shepherd	92 "	Tumor of Mesentery	Seven Months
3	Kocher	82 "	Railway Injury	Six Months
4	Koeberle	73¼ "	Multiple Stricture	" "
5	Kocher	63 "	Strangulated Hernia	" "
6	Schlange	53 "	" "	Two years
7	Eliot	48¾ "	Gangrene of Intestine.	" "
8	Roux	48¾ "	Tumor of Mesentery	Six Months
9	Trombetta	43½ "	(Not stated)	" "
10	Werder	42 "	Tumor of Mesentery	" "
11	Hahn	31½ "	(Not stated)	" "
12	Beaver	30 "	Strangulated Hernia	Five years

Grybicky, who experimented largely upon lower animals, concludes, after much careful study, that in an emergency a healthy adult can afford with impunity to surrender as much as nine and one-half feet of intestines; but all the authentic cases of considerable loss of intestine thus far reported neither prove nor disprove the correctness of his statement. Ruggi's extraordinary case occurred in a boy, and the total loss stated represents the excision of the intestine at two different operations, separated by a considerable interval of time. In another case, No. 3 in the list, there was a marked tendency to diarrhea, and in a few others the history shows that careful dieting was necessary to avoid this condition. True, the majority of patients on the list gained flesh and showed no serious disturbance of digestion or assimilation, but this condition of physical well-being seems due rather to the mild character of the lesion which necessitated the operation rather than to any other feature of the case. Other conditions being equal those patients having a traumatic lesion can bear a greater loss of intestine than those having a pathologic lesion. This may be seen in comparing the conditions found in multiple stricture; gangrene or tumor of the mesentery with those of simple strangulation.

The case which I reported, with an operation by Doctor Beaver, was uncomplicated from first to last, and now after the lapse of five years the patient continues in excellent health, and is even better than before his loss of thirty inches of intestine. I quote the closing paragraph of the first report: "The gain in flesh after the resection and before the patient left the house was considerable. In the fifth week, when he was weighed, twenty-two pounds of his original weight were still lacking. The first week after weighing he gained six pounds; the second week, four pounds; the third week, three pounds; the fourth week, two pounds; and in the thirteenth week after the operation, which was to establish a fecal fistula and the eighth week after resection, he reached his former weight and felt as well as ever."

The resection was effected by the aid of a Murphy button which was voided quite unbeknown to the patient on the seventeenth day. Twelve hours after the operation for resection he had the first fecal movement, his first rectal discharge in five weeks. After the eighth day he had daily movements: at first there were four or five stools each day but later they became fewer. The manner in which the normal intestinal functions returned, as judged by the stools, was interesting. After a few weeks the number of daily stools was reduced to three; two occurring in the early morning and one at night. The stools were then thin and unformed. A few weeks later he had but two daily movements, night and morning, and the stools began to be partly formed. Later still there was no night movement and formed stools became the rule. Up to the present time he has had one normal stool daily with a clock-work regularity. After sufficient time had passed to complete cicatrization all restrictions of diet were removed and he has since eaten and worked as usual. His body weight has fluctuated between 150, his weight before operation, and 164, according to the season. He no longer has a hernia and is in every particular in perfect health.

1938 SO. 12TH STREET.

[1] MEDICAL NEWS, January 19, 1895.
[2] *Montreal Medical Journal*, December, 1897.

MEDICAL PROGRESS.

Ludwig's Angina.—HAMANN (*Cleveland Jour. of Med.* September, 1899) thinks it better to drop the term "Ludwig's angina" as it is applied to a number of different inflammatory conditions in the neck whose etiology and course are now well understood. They are produced most commonly by infection through the lymphatics from some lesion of the mouth or pharynx. Laryngitis results

and then lymphadenitis, and to the latter is often added perilymphadenitis with cellulitis. A much rarer mode of infection is through the ducts of the salivary glands, particulary the submaxillary. In cases of gangrenous diphtheria cervical abscesses may form containing a thin putrid pus. The description of the cervical fascia has been made unnecessarily complex. What one needs to know is that there are certain spaces between the various organs of the neck filled with a loose connective tissue that allows the mobility of the parts. Into these areas inflammatory processes extend and in them pus forms. If the lymphatic glands contained within the capsule of the sub-maxillary gland suppurate, there will result marked tension of the capsule with more or less surrounding edema. Another space for infection lies between the trachea, larynx, and thyroid, and the muscles in front of them. Abscesses situated here may press upon the air passages and extend into the anterior mediastinum. A third space is around the great blood vessels of the neck. Abscesses here will raise the sternomastoid muscle and may point between this muscle and the trachea or may extend into the mediastinum. A fourth space is behind the esophagus and pharnyx and is known as the retro-visceral space. Post-pharyngeal abscesses occur in this situation. A fifth space is at the lower end of the sternomastoid, bounded posteriorly by the great vessels and the scaleni muscles. This space is in communication with that of the carotid and jugular vein and also with the axilla. These spaces are not entirely separated from one another but an inflammatory process beginning in one of them does not extend to others until tension is considerable. The extent of edema and induration may make it impossible to say, however, in what space the trouble began if the patient is first seen some time after its commencement. Sometimes there is a board-like induration of the whole side of the neck. This may remain for days or weeks and then subside without the formation of pus or with the formation of one or many small abscesses. The author recommends the application of hot poultices and a small incision as soon as the presence of a soft spot indicates the existence of pus. Closed artery clamps are then introduced into the abscess and the wound stretched by separating their blades. Gauze drains or drainage-tubes, if the pus is thick, and wet dressing complete the treatment.

The Rubber Finger-Cot in Obstetrics.—BOND (*Maryland Med Jour.*, October 14, 1899) recommends the rubber-finger cot for vaginal examinations, especially in obstetric cases. It protects the finger from poison, it glides easily into the vagina, and does not bring away the lubricating mucus to the extent that the bare finger does. The vulva should be washed, the labia separated, and covered with a fold of fresh gauze or a piece of fresh muslin containing a vertical slit. The finger may then be introduced without coming in contact with any unsterilized surface. By these simple measures asepsis is secured and the physician is saved the time and trouble of attempts at disinfecting the hand by means which often appear to the patient to be needlessly complicated. The finger-cot can be laid aside in a disinfecting solution until the next examination, but each time a fresh piece of gauze should be used. All necessary information can be gained through this thin rubber. For rectal examinations or the digital examination of any unwholesome cavity, the rubber-cot ought to appeal to every surgeon who cares for cleanly hands.

Fatal Umbilical Hemorrhage.—COFFART (*Jour. des Sciences Médicales*, August 26, 1899) reports a case of fatal umbilical hemorrhage occurring in a child ten days old. The physician in charge of the case ligated the cord as usual and wrapped it in linen soaked with oil. It came away spontaneously on the sixth day. On the ninth day the skin showed evidence of jaundice. The following night when lifting her baby to the breast the mother discovered that its clothing was soaked with blood. The umbilicus was still bleeding and the hemorrhage could not be stopped. The physician was sent for and found the blood slowly oozing from the umbilical stump. Digital compression, cauterization with nitrate of silver and dusting with antipyrin failed to stop the hemorrhage. It ceased, however, after the application of cotton soaked in a ten per cent. solution of antipyrin. Two hours later it recurred and in spite of attempts to stop it the child died at midday. The author attempts to trace the relation between icterus and the fatal hemorrhage. In his opinion, the icterus was of an infectious character and the unprotected stump of the cord was presumably the point of entrance. The impoverishment of the blood and the diminution of the globules produced by the icterus predisposed to the fatal hemorrhage.

Abscess of the Brain.—SIMS (*Va. Med. Semi-Monthly*, September 8, 1899) mentions a case of brain abscess occurring under peculiar circumstances. A captain in the United States Army suffered with symptoms of nervous prostration which became so bad that he was given a year's leave of absence. At the end of that time he returned to duty much improved in health, but still excitable, easily fatigued, complaining of indigestion, constipation, and myalgic pains. After a long trip in a rough vehicle, he suffered for several days with headache followed by neuralgic pains in the left side of the head. Various remedies failed to relieve this but it was temporarily helped by hypodermic injection of morphin. The symptoms grew worse so that in ten days vision was partially lost and delirium set in, and on the fifteenth day the patient died. The autopsy revealed the presence in the left frontal lobe of an old abscess the size of a hen's egg, with thickened walls and inspissated pus. It was entirely in the central portion of the brain, not affecting the cortex at any point. There was a recent rupture of the abscess downward and backward through the basal ganglian and into the medulla. Apparently the original abscess had existed for two years, becoming encapsulated after the prolonged rest in hospitals.

Monobromid of Camphor in the Treatment of Epilepsy.—HASLE (*La. Gaz. Hebdom.*, September 3, 1899) recom-

mends strongly the use of the monobromid of camphor in the treatment of epilepsy. On account of its odor and taste it may be given in pills or hypodermatically. The following solution may be used for that purpose:

℞ Camphor monobromid . . gr. xxx
Alcohol . . . . 3 iv *m.* x
Glycerin . . . . 3 iii *m.* x.

As a large number of injections will be necessary if this solution is used, it is perhaps best to give the drug in capsules. The dose may be increased, if necessary, up to a dram. It has been found useful in hysterical forms of insanity and in different forms of hysteria as well as in epilepsy. It will prevent nightmare. If persisted in it will cause attacks of epilepsy to disappear, but its use should be continued several days after the disappearance of the symptoms.

THERAPEUTIC NOTES.

Belladonna in the Bronchopneumonias of Children.—HODGHEAD (*Pediatrics*, September 1, 1899) cites some striking instances in which bronchopneumonia in a child was quickly overcome by the administration of drop doses of the tincture of belladonna given every hour. Encouraged by the success which followed this treatment in the first case, the writer adopted it in twenty-five others in his own practice and it was also carried out in five cases in the practice of other physicians. The belladonna was in every instance preceded by small doses of calomel until the bowels moved freely. Twenty-eight of the thirty patients thus treated recovered. The action of the belladonna in small doses is a mildly narcotic one that increases the comfort of the child. It raises the arterial tension and stimulates the cardiac sympathetic, thus acting as a heart tonic. It is also a respiratory stimulant. It dilates the superficial capillaries and relieves the congested lungs; but by far its most important influence is to diminish the secretion of the bronchial tubes and thus to evert the threatened asphyxia. To attain the required effect it has to be administered in quite large doses every hour or two. Children are not very susceptible to the drug and infants a few months old may take with safety as much as a child of six. By administering the drug in frequent doses it can be withdrawn if any unpleasant symptoms arise, although in no one of the thirty patients treated did any dangerous complication appear.

Treatment of Chronic Gastric Catarrh.—EINHORN ("Twentieth Century Practice," vol. viii) says that, in the first place, the diet should be regulated in accordance with the severity of the symptoms. Four meals a day, for the most part of liquid or semisolid food, should be taken. After a week or two of this regimen the diet should be changed, and made to correspond as nearly as possible to that ordinarily taken. Vegetables should be eaten in large quantities, but meats should be somewhat limited. Meat that is very fresh, or that of tough fiber, such as pork, and such articles as sausages, lobster, salmon, chicken salad, mayonnaise, cucumbers, pickles, cabbage, and strong alcoholic drinks should be strictly avoided. The patient should eat slowly, masticate well, should not think of business during meals, and should stop eating before a sensation of satiety appears. He should lead a rational hygienic life, his hours of business should not be too long, and he should take plenty of exercise, though avoiding overexertion. Upon rising in the morning he should take a cold sponge-bath, and follow it with a brisk rubbing with a coarse towel.

Lavage may be necessary, especially in the mucous form of the disease. This should be carried out every other morning for two or three weeks, the patient being in a fasting condition. Lukewarm water with the addition of a little common salt should be used. Electricity and the use of mineral waters may be necessary to bring about a cure. Drugs are not relied upon to nearly as great an extent now as formerly. If the gastric juice is deficient in hydrochloric acid 6 to 12 drops of the dilute acid in half a pint of water should be taken in three parts at fifteen-minute or half-hour intervals three times a day after meals. Pepsin is absolutely inefficient. Artificial aids to digestion are not necessary, and if given are frequently injurious. Fluid extract of quassia, columbo, or condurango, 20 drops, or tincture of nux vomica, 10 drops, in half a wineglassful of water may be given before meals with advantage in many cases.

The Treatment of Epistaxis.—RAUGE (*Rev. de Therap.*, July 15, 1899) says that every epistaxis is a surgical hemorrhage demanding surgical treatment. The first indication is to look for its source. The ala of that side of the nose from which the blood comes should be lifted sharply upward, while the septum is bent in an opposite direction. This maneuver often suffices to disclose the bleeding-point, which is usually situated about an inch from the tip of the nose. A speculum is not needed, and is often in the way. Sometimes the exact bleeding-point cannot be seen, but pressure upon the area from which the blood comes, made with the finger or with a clamp covered with a little gauze, will stop the hemorrhage Should the blood come from a deeper portion of the nose it is necessary to apply tampons. They should be introduced through a nasal speculum. Small bits of absorbent cotton are packed in one after another. It is important that they should be very small. The cotton may either be used plain or saturated with some astringent or with peroxid of hydrogen. Before resorting to tampons it is well to try the effect of a very warm injection, 40° to 45° C. (104° to 113° F.°). In a few cases it may be necessary to pack the posterior nares. Tampons should not be left in more than twenty-four hours. At the end of this time they should be removed, and the nasal cavity disinfected. If necessary, tampons may be reintroduced.

For Punctate Acne.—

℞ Ichthyol
Bismuthi subnitrat. } aa. . . . 3 i
Hydrarg. ammoniat.
Vaselini . . . . . 3 x.

M. Ft. Unguentum. Sig. External use.—*v. Hebra.*

THE MEDICAL NEWS.

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SATURDAY, DECEMBER 2, 1899.

THE PRESENT STATUS OF HYDROTHERAPY.

Some recent contributions to hydrotherapy by physicians of merited eminence direct attention to the ancient therapeutic method, which appears to have taken a new lease of life, if we may judge from its warm espousal by men who are not specialists in that branch of therapeutics. In the *American Journal of Insanity* (No. 4, 1899) Dr. Foster, physician to the Goverment Hospital for the Insane, writes: "Hydrotherapy to-day rests upon the same basis of physiologic investigation and clinical study as is involved in determining the scientific application of any therapeutic agency. Those who lead the thought and practice of the profession are practically unanimous in this favorable attitude towards it."

In a recent essay on hydrotherapy Professor Putman of Harvard University discusses its "scientific basis," and says that he "can corroborate from his own experience the favorable statements made by others regarding its results in chronic affections characterized by debility, anemia, and in the neurasthenic states." In the discussion of this essay Dr. Rogers said that, having used water in the treatment of disease for twenty-five years, he ranked it with opium, cinchona, iron, and alcohol; he felt sure that by the aid of hydrotherapy he had seen cures or improvements in cases not successfully treated by others or by himself with drugs and hygienic measures. It is almost time that the Medical profession awoke to the fact that hydrotherapy has at last established itself on a sound scientific basis." Among recent utterances by foreign clinicians we may quote Kussmaul, who insists that "the treatment by water has passed its childhood days. It has won for itself a steadily growing confidence as a remedial agent."

The laudations of hydrotherapy by some of its advocates have at times justly created doubt and distrust, and its adoption as a universal panacea by the hydropaths has estranged conservative physicians. Moreover, there existed no scientific basis for hydrotherapy before Winternitz. To prevent this remedial agent from again lapsing into disuse it would seem necessary that the principle and method of its application be made a distinct part of the college course. As water differs from all other remedies now taught in the lectures on therapeutics, it requires special apparatus for demonstration of its physiologic and therapeutic effects. In the discussion of Professor Putnam's essay Dr. Rogers said jocosely but truly that "medical colleges ought to cease to graduate men who don't know the difference between a Scotch douche and a hot Scotch," and Dr. Coggeshall insisted that "it is almost disgraceful that students should be allowed to graduate from our medical colleges with practically no systematic teaching in regard to non-medicinal therapeutics." Kussmaul writes: "Of hydrotherapy the young physician knows almost nothing. Here is a great gap in the education of our physicians; here is the real cause of his inability to cope with the empirics for the favor of the public. A revision of our course of study must be made above all things. A distinct chair and a clinical division are required in which appropriate cases may be treated by hydrotherapeutic procedure, but this professorship should not be connected with that on pharmacology." Professor Vierordt feels warranted in "the recommendation that facilities for ambulant hydriatric treatment should be connected with every medical polyclinic for the benefit of patients and stu-

dents alike." Professor Credé of Leipzig, claims that "if physicians were better versed in these branches, the field of operation of many quacks would be greatly curtailed." Hence, Dr. Foster says truly: "it requires only a very ordinary every-day seer to foretell that hydrotherapy must very soon be introduced into our leading schools of medicine as a regular branch of our curricula. This will result both from the growing sense of its value, and because it should be as largely as possible in the hands of the general practitioner and not exclusively with the specialist."

This brings us to another cause of failure of acceptance of hydrotherapy by the profession, *viz.*, its active adoption by laymen in recent years. This is but a repetition of history. "Father Kneipp" followed the methods of Pater Bernardo who preceded him more than a century; and the peasant Priessnitz, who preceded Kneipp a half century, advocated the methods of the parson Hancock who wrote on water as "febrifugum magnum" in 1723. To day the "Naturarzt" represents these empirics. His ranks are recruited from among clerks, merchants, teachers and students who, having failed in their chosen calling, become masseurs or bath-nurses, and graduate into "Nature-doctors" when they have the means to open an institution and advertise themselves. Thus far this class of semi-doctors has not become a positive disturbing factor in this country. That their encroachment is not distant is evident from the fact that institutions of this kind already exist in New York, New Orleans, and perhaps elsewhere. These are "run" by bath nurses and masseurs whose specious promises inveigle some medical men into employing them. Until physicians become familiar with the prescriptions of the various hydriatric procedures, and until nurses are trained to fill such prescriptions, as druggists do in their branch, it would seem important that only institutions supervised by educated physicians be resorted to for hydrotherapy. Malpractice by bath-nurses who are unfamiliar with the principles of hydrotherapy has come under our observation. Their prescriptions are analogous to the counter-prescribing of druggists.

Professor Putnam justly deplores the fact that "there is no institution in Boston under the guidance of a physician to whom one may send patients with the confidence that they will be judiciously treated" In New York, Chicago and Philadelphia such institutions exist, and it is probable that the recently developed interest in hydrotherapy will lead to their establishment elsewhere. Thorough instruction in this subject in our medical colleges, and the management of institutions by educated physicians, will establish water as a remedial agent upon an enduring basis.

MOSQUITOES AND OTHERS.

WE are accustomed to regard insect plagues from the purely perverse standpoint of our subjective inconvenience, tacitly believing that their own attitude is like that of the ubiquitous small boy, who

> "Only does it to annoy.
> Because he knows it teases"

But science is constantly revealing to man his state of dependence on the most trivial things. Some years ago it was discovered that sipping honey was not a mere butterfly pastime, but an economic factor in the world's food supply, and that without the intervention of myriads of different insects that transferred the pollen, many fruits, vegetables and crops would never mature. Now it is demonstrated that diseases are winged; or at least very many of them need the aid of a pair of wings, or a good pair of hoppers, to get from one person to another It is not only the malarial-laden mosquito that serves as a transmitter of disease, but very many of the particular and private pests of man and domestic animals may be the bearers of contagion. In the light of this hint it is not surprising that the culmination of the ten plagues of Egypt was the entrance of the death angel in the land.

The simplest method of infection is allied to that by which insects fertilize flowers. Flies, not necessarily biting flies, but those of the scavenger order and the common house-fly, get their legs covered with the bacteria of cholera, typhoid and plague as they light and crawl on the sick or dying and the utensils used by them, and then immediately transfer the infectious matter by alighting on the food prepared for well persons.

The method of transmitting malaria and Texas cattle fever is a more complicated process. Here insects act not as mere conveyers but as intermediary hosts of the disease. The ingenious methods of experimenters are very interesting, and a combined spirit of martyrdom and love of the chase must have been

necessary to get at the evidence in the case of mosquitoes and ticks of Texas fever, to say nothing of the fleas that have been found to carry the plague from sick rats to human beings.

The subject is worth the critical and historical study which has been made of it by George T. Nuttall, M.D., Ph.D., and admirably presented in the last *Johns Hopkins Hospital Reports*. He has given a remarkably able résumé of the subject, showing that many other diseases such as anthrax, hog-erysipelas, chicken-cholera, yellow fever, tuberculosis, leprosy, Egyptian-ophthalmia and Florida "sore eye" are spread by the aid of vermin and flies. An immense amount of research work has been done along these lines, as may be seen from his extensive bibliography appended. The exact species and the habitat of the infecting vermin or insect have been determined, and the conditions of soil and climate have been studied with the result, that if the combination of mosquito-netting and a kerosene-can will prevent malaria, it may be hoped that some equally simple and efficacious method may be found to stamp out various other plagues of cattle and of humanity.

ECHOES AND NEWS.

Plague Bacillus Found. — Dr. W. H. Park announces that the bacillus of the plague has been found in culture in both of the cases taken from the plague ship "J. W. Taylor."

Marine-Hospital Appointments.—On November 23d the President appointed Drs. Robert L. Wilson, Clarence W. Wille, Elmer R. Edson, and John W. Amosso to be assistant-surgeons in the United States Marine Hospital Service.

The American Hospital-ship "Maine."—Up to November 23d the fund for fitting out the "Maine" as a hospital-ship exceeded $90,000, exclusive of the receipts of the concert directed by Mrs. Brown-Potter. At the meeting of the executive committee of the fund on the above date three American surgeons and five nurses presented themselves and were cordially received by Lady Randolph Churchill and her colleagues.

A Barber Law in Missouri.—All the other progressive States might well follow the example set by Missouri. She has passed a "barber law" which requires that a barber must pay $1 to a Board of Examiners for certifying to his competency, that solutions of carbolic acid shall be used in the disinfection of razors, that sterilized towels shall be used, and that in other ways cleanliness and sanitation shall be observed.

Smallpox in Kentucky.—Smallpox has broken out in several counties of Kentucky. According to the statement of Dr. J. H. McCormack, secretary of the State Board of Health, there are in Uniontown, whose population is 1800, five hundred victims in various stages of the disease. The authorities in this and other towns seem to have concealed a really serious state of things. Uniontown, the source of the epidemic, has at last been placed in absolute quarantine and the entire State is urged to enforce general vaccination.

Diphtheria in New Jersey.—There is an epidemic of diphtheria in Montclair which is, however, fast subsiding. Up to November 26th there were twenty-two cases in the town. Two public schools and the parochial school connected with the Church of the Immaculate Conception were ordered to be closed on November 27th. In Newark there have been 126 cases reported during November with 11 deaths. During the same month of 1898 there were 140 cases. The disease is not confined to any portion of the city.

A Manila Hospital.— The Auxiliary Society of Trained Nurses has done excellent work in the Philippines. This Society must not be confused with that of the Red Cross. It is supported by wealthy New York citizens, and the nurses are not paid by the Government and are, indeed, not in the government employ at all, except as volunteers. There are twenty-seven nurses in charge of Miss Henschall, who was head nurse at one of the large military hospitals during the Spanish War. The Society supplements the work of the Hospital Corps.

Privileged Communications.—The *Lancet*, in commenting on privileged communications, observes that in a recent French case at Besançon, the Court declared that neither the consent of the patient's heirs nor anything else could free a medical man from the obligation to keep secret the disease for which he had treated the patient. This is of the same tenor as the law in this country. In England, on the other hand, physicians and surgeons may be compelled to disclose communications made to them by their patients in professional confidence.

Faith-Healers Outwitted —S. P. Linberger, a Christian Scientist, died at Wooster, Ohio, on November 23d. He had refused medical aid. After his death it was discovered that his son was sick with typhoid fever, and that the other members of the family would not permit a physician to be called. The young man's associates called the attention of the Probate Court to the case, and Judge McClarran promptly appointed a guardian for the young man, with instruction to procure at once a physician and a competent nurse, and to see that the medicine prescribed was administered.

Medical Students Suspended.—The entire senior class of the Medical School of Boston University was suspended from all recitations and lectures by the Faculty on November 25th. The cause was the boisterous conduct of

the class on two occasions when they were on their way to attend clinics at the Westborough Hospital for the Insane. This conduct was reported to the hospital authorities, who made complaint to the school, charging the class with insubordination, and refusing to allow them to continue their clinical work at the hospital. Dr. J. B. Sutherland, Dean of the school requested an apology, which was refused. The suspension of the students followed.

Progress of the Plague.—According to latest reports of the Marine Hospital Service 25 cases of plague have been reported from Santos, Brazil, with 10 deaths. On October 14th the mail steamer "Peninsular" disembarked at Plymouth a colored fireman who had been taken ill on October 9th with plague en route, also the sick man's attendant. Both were placed under sanitary police surveillance on the hospital ship "Pique" lying off Plymouth. The mail steamer left Plymouth for London. According to last advices no further cases had developed on board. From November 4th to November 11th, 11 fresh cases and 7 deaths were reported from Oporto, making a total of 236 cases and 81 deaths. The suspected cases of Delagoa Bay have been confirmed. This is of impor tance since through this port most of the present traffic to the Transvaal is passing and the danger of plague complicating the South-African War is not very remote.

Deaths of Dr. Prentiss and Dr. McMurtrie—Dr. D. Webster Prentiss, a lifelong resident of Washington, D. C., and a well-known physician and naturalist, died in that city on November 20th, aged fifty-six years. He was a member of many medical societies. He wrote much on medical subjects, and he was the author of a valuable work on the song and game birds of Maryland and the District of Columbia. During the Civil War he served as a surgeon in the Union Army. Dr. Daniel McMurtrie Medical Director in the Navy, retired, died in Washington, on November 21st. He had been in ill health for nearly a year, but was able to attend to his duties in the Navy up to the time of his regular retirement several months ago. He was sixty-three years old. He was graduated from the medical department of the University of Pennsylvania and he entered the United States service in 1861. He served in many important naval engagements. Several years ago he was Fleet Surgeon on the Asiatic station.

Sugar Diet for Troops.—Germany has completed elaborate experiments with sugar as a food for troops. The object was to test the advantages of a sugar diet in cases where great exertions were to be made within a brief period of time. According to the reports of experiments in various army corps a favorable result has been secured. It is considered proven that a sugar diet increases muscular power in a comparatively short time, considerably shorter than does egg-albumen. The effect of the latter, however, is more lasting, though sugar has the advantage of being much cheaper. The great rapidity of sugar absorption explains its rapid effect on the nervous system, which is a matter of great importance in all cases where speedy recuperation is desired, as in long-distance marching. Artificial substitutes for sugar, such as saccharin, have not the same effect. These experiments were conducted by Professor Pfuhl, head of the Physiological Laboratory of the Army Department, and Professors Senator and Muck of Berlin University. Possibly these findings may induce General Sternberg to modify the ration of our troops in the Philippines, which, according to Dr. Seaman, is the same as that supplied our troops in Alaska.

The Organization of the Acting Assistant-Surgeons of the United States Army.—A mass-meeting of the Acting Assistant-Surgeons of the United States Army during the Spanish War will be held at the armory of the Seventh Regiment, N. Y. N. G., Lexington avenue, New York City, on Tuesday, December 5, 1899, at 2 o'clock, P.M., for the purpose of organization, and to secure legislation by Congress doing justice to them and their interests, as follows: "(*a*) To give each the assimilated rank, pay, and emolument of a first lieutenant (staff) upon and for the date of muster-out, thus legally fixing his *status* as an *officer* of the army. (*b*) To give to each, comformably to the admitted verbal agreement and intentions of the Surgeon-General's Office, full payment for properly granted leaves of absence. (*c*) To give to each the commutation of quarters (when government quarters were not found) which was originally both stipulated and allowed, but afterward cut off. (*d*) To give to each the mileage and travel pay originally promised and enjoyed, but later by unjust discrimination disallowed and retracted. (*e*) To give to each the same rights and eligibility to pensions and to land and other emoluments that attach to assistant-surgeons of the United States regular or volunteer army. (*f*) To give to each the same allowance of extra pay that was given to officers and men of the United States volunteers in the late war, *viz.*, one month's extra pay for service in the United States and two months for service beyond seas. (*g*) To give to each preference for appointment (over those who have not had previous service) in the Medical Corps of the Army and Navy, and the Marine Hospital Corps of the United States, etc." It is truthfully claimed that the burden of the medical and surgical work of the Spanish War was borne by the nearly 1000 acting assistant-surgeons of the army, who were usually competent, devoted, and brave, dealing often and successfully with new forms of disease and great sanitary problems. They sometimes died on the firing line, but more often of disease, being always and everywhere exposed. overworked, and ill-fed. Theirs was only the shadow of rank and authority, and, though poorly paid, they were later deprived of part of their stipulated compensation by the narrow rulings of Treasury officials. No one can honestly question that they have deserved well of the country and are clearly entitled to the benefit of the contracts made with them, to honorable recognition, and the same consideration in every respect given to those of like position in the staff corps of volunteers and regulars, whose full duty and responsibility they ably performed.

MEDICAL MATTERS IN NEW YORK.

DEATH OF DR. WALLACH—SOFT COAL A NUISANCE—FOR BETTER TENEMENTS—HOME FOR CONSUMPTIVES—WOMAN'S HOSPITAL WORK—TAKEN TO MANY HOSPITALS—AMBULANCE DELAYED THROUGH MISTAKE BY POLICE—DR. DOTY'S RETURN—MISSIONARY WORK DONE BY THE NEW YORK COUNTY MEDICAL SOCIETY.

DR. JOSEPH G. WALLACH died in this city on November 21st after a long illness. He was forty-four years of age and a graduate of Bellevue. Dr. Wallach was a Director of the Educational Alliance of this city and a member of the New York County Medical Association.

The Appellate Division of the Supreme Court, Kings County, has affirmed the judgment of the County Court in a suit brought to recover damages from the Nassau Electric Railway Company for using soft coal, in contravention of the laws of 1895, which proscribes its use within certain city limits. It was held that it is well within the police power of the State for the Legislature to declare that the burning of soft coal within certain prescribed limits of the city is detrimental to the public welfare, and should be prohibited under authorities cited.

One of the features of the tenement-house exhibition to be held in this and in various other cities in January next will be a competition by architects for plans of model tenements. It is hoped thus to stimulate the interest of architects in the planning of houses for low wage-earners, and to show that such buildings erected with the object of obtaining a maximum of light and air can be made to pay the owners. Prizes will be offered, ranging from $500 down to $100, for the best plans. All plans submitted must provide for plenty of air, and there must be no damp, narrow courts. Prize plans will be exhibited at the Paris Exposition in 1900. The jury of award of prizes is composed of W. Bayard Cutting, I. N. Phelps Stokes, W. R. Mead, Miss Lillian Duald, John D. Crimmins, E. R. L. Gould, and Mrs. Roland C. Lincoln.

The Board of Directors of the Montefiore Home will erect a new sanatorium for poor consumptives at Bedford Station, in Westchester County, N. Y. The new building will cost $150,000, and will be devoted to the treatment of indigent consumptives. It will contain all modern and scientific improvements. The site selected is 410 feet above sea-level, overlooking the hills of Bedford.

The forty-fourth anniversary of the Woman's Hospital at Fiftieth street and Lexington Avenue was observed on November 23rd. Many well-known gentlewomen were present. Drs. Joseph D. Bryant, Henry D. Nicoll, Clement Cleveland, Horace Tracy Hanks, and John Duncan Emmet were among the representatives of the medical staff. According to the annual report of John E. Parsons, Esq., the President of the Board of Governors, the total number of patients treated in the indoor department was 863, of whom 267 were free patients. It is expected that a new hospital, costing four hundred thousand dollars, will be built.

The hospital system which makes the following occurrences possible should certainly be changed: Bridget Murphy on November 13th fell through the trap-door on the roof of her house to the floor below, fracturing her skull. She was taken to the J. Hood Wright Memorial Hospital, where she was kept for two days. Then she was hurriedly transferred to Harlem Hospital, whence she was again transferred to Bellevue and finally to the City Hospital where she died. The autopsy of Dr. Weston, Coroner's physician, revealed meningitis and a fracture at the base of the skull. Dr. Weston volunteered the opinion that the patient would not have died from her injuries had she not been removed so often. John Cunningham, 70 years old was struck by an electric-car and was taken to Harlem Hospital on November 20th. Later he was transferred to Bellevue. The Bellevue authorities wished to retransfer him to the City Hospital, but his family called at the hospital and protested. They took him home in a cab, and he died soon after.

Whenever the ambulance system in this city is not found quite perfect, it is the surgeons who are invariably held blameworthy. In the following instance the police were clearly at fault: The Harlem Hospital was notified at 7 A. M. to hurry an ambulance to 543 East 143d street to attend a woman who had jumped from a third story window. Ambulance Surgeon Muller went at once to that address but found no patient. On his way back to the hospital he passed the East 138th Street Police station where he learned that the injured woman was at 543 East 134th street. He went at once to the place, and found the patient, who died soon after he reached her. The mistake caused an hour's delay. Had he been given the correct address at first it is very possible he may have saved the woman's life.

Health Officer Alvah H. Doty arrived home on November 25th. During his seven weeks absence he observed the methods in operation in Europe for the inspection and transportation of intending immigrants to this port. Dr. Doty gave unqualified approval to his deputies, Drs. Sanborn and L'Hommedieu, for their management of the plague cases at quarantine.

Dr. Doty, while in Europe, visited German ports, and went also to St. Petersburg, Moscow, Warsaw, Rotterdam, and other ports of embarkation in the low countries. Concerning Russian immigrants Dr. Doty found that they came from densely settled communities, and that they are subject to close supervision. No person can leave his home to go to another locality without a passport. If any epidemic breaks out in small villages a cordon of Cossacks is put on guard, the town is burned, and the inhabitants are provided with new clothes. All Russian inspections are thorough.

On the German frontier are six points of inspection to which the railways bring the immigrants, who are put into barracks and subjected to the inspection of a medical officer. At these points all those who fail to come up to the standard required by the United States immigration laws are sent back. Each of these inspection stations are provided with disinfection plants, detention barracks, and have medical examiners in attendance

About six miles outside of Berlin is a place to which those from the six frontier stations are sent. This is called a control station and is maintained at the expense of the steamship companies which are banded together to maintain an inspection service to prevent the embarkation of undesirable persons. From the control station the immigrants are sent to the point of embarkation, where another rigid inspection is made. At this inspection there is a United States consular officer always present. Dr. Doty received every courtesy from the officials he met, and special offers were made him to inspect stations, hospitals, laboratories, etc. He was astonished, he said, at the excellent systems prevailing generally.

The following summary of work accomplished by the Medical Society of the County of New York, through its Council, in suppressing illegal practice in this city, speaks for itself: During the year ending October 1, 1899, there were 45 new prosecutions, 33 convictions, 17 cases otherwise disposed of, and 11 left pending. In fines $2425 were imposed and $2075 collected. The total expense amounted to $2867.40.

MEDICAL MATTERS IN PHILADELPHIA.

[From Our Special Correspondent.]

SECTION ON OPHTHALMOLOGY, COLLEGE OF PHYSICIANS OF PHILADELPHIA—PHILADELPHIA COUNTY MEDICAL SOCIETY—$5000 APPROPRIATED TO STAMP OUT SMALLPOX—SALARIED SCHOOL INSPECTORS—THE MEDICAL AND PHYSICAL CAUSES FOR NON-ATTENDANCE IN THE PUBLIC SCHOOLS—STUDENT GOVERNMENT AT JEFFERSON—ST. MARY'S HOSPITAL—DR. SIMON FLEXNER—DR. S. WEIR MITCHELL—HEALTH REPORT FOR THE CURRENT WEEK.

PHILADELPHIA, November 27, 1899.

DR. G. E. DE SCHWEINITZ reported a case of "Gumma of the Iris and Ciliary Body, with a Histological Study of the Enucleated Eyeball," at the last meeting of the Section on Ophthalmology of the College of Physicians of Philadelphia, held November 21st. The patient was a woman of forty-eight years, who had been treated for secondary syphilis at the Philadelphia Hospital, from which institution she had been discharged after the disappearance of the symptoms. In May, 1898, she was again admitted, having complained for three weeks of an acute inflammation of one eye. Iritis was pronounced; there was a yellowish-white new growth on the upper part of the iris, and the lower part of the eye contained a mass of broken-down whitish material. The patient was placed on protoiodid of mercury, mercurial inunctions, and large doses of potassium iodid, under which treatment the broken-down granulomatous material disappeared from the lower part of the eye; the condition of the eye, however, was such that enucleation was indicated, which operation was done on June 27th. It was ascertained that a gumma sprang from the anterior part of the ciliary body and involved the iris. The cornea was normal, except where it overlaid the gumma. The half of the iris not included was infiltrated with round cells, being attached by total synechia to the capsule of the lens, which was also infiltrated with gummatous tissue. The retina was approximately normal.

At the same meeting Dr. Burton K. Chance presented by invitation a communication on the "Clinical Study of Twenty-two Cases of Epidemic Cerebrospinal Meningitis, with Especial Reference to the Ocular Symptoms." The cases observed were among the 37 treated at the Municipal Hospital during the epidemic of cerebrospinal meningitis in this city last January. The majority of the cases were first seen during the second and third week of the disease, some of the patients were stuporous, others exceedingly irritable, and still others were found in strong opisthotonos, all of these complications rendered ophthalmoscopic examination very difficult. Among the subjective symptoms the most conspicuous were photophobia, burning pain in the eyelids, and in one case unilateral ptosis. Visual tests showed varying conditions—2/100, 2/60, 9/50, and so forth. There was internal squint in two cases, and marked choked disc in one. In many cases congestion of the optic disc and retina was observed. No hemorrhages were noted, but in some cases the lymph-sheaths around many of the vessels were distended. There were 15 deaths among the whole number of cases treated at the hospital, and 8 from the series reported by Dr. Chance. No post-mortems were made. Among the fatal cases was the patient with choked disc. Owing to the fact that none of the patients who recovered reported subsequently for examination, the permanent effect of the disease could not be studied. In a single case seen at the Will's Eye Hospital, the patient had double choked disc, and gave a history of an attack of cerebrospinal meningitis during the same epidemic in this city.

At the last meeting of the Philadelphia County Medical Society, held November 22d, two interesting papers were read on the topic of skiascopy in pulmonary diseases, by Dr. Wm. S. Newcomet, and by Dr. T. Mellor Tyson. Dr. Newcomet's paper, on "The Use of X-rays in the Study of the Lung," demonstrated the value of the Roentgen-rays as a means of verifiying conclusions reached by other clinical methods, but also showed that the method by no means sets aside the older and more dependable methods of diagnosis. As a contradiction of the belief held by some that dense structures alone are visible with the X-rays, Dr. Newcomet showed a radiograph of a handkerchief in which the folds and creases were visible. Contrast is needed in this work, and a weak light may give a shadow where a strong light would penetrate, showing nothing. Where dulness on percussion is obtained over the chest the underlying consolidation may be seen with the fluoroscope. Cavities are recognized in the fluoroscopic image as circular spots with a bright center, and a surrounding darker zone. Old pleuritic thickening over an area of consolidation shows as an intense blurring darkening.

Dr. Tyson, in a paper on "The Practical Use of the Fluoroscope and Radiograph in Lung Diseases," expressed the conviction that the use of these aids in diagnosis was a great help in arriving at early diagnosis in diseases of the lungs, the fluoroscope being especially

useful in most instances. It should be used in all cases where there is the least doubt regarding the diagnosis and where cavities are present its intelligent application will in many cases give a better idea of the extent of the cavity than can be obtained by any other method known to clinical medicine. A number of cases was detailed to show the ease and certainity with which the skiagraph and fluoroscope located areas of consolidation and cavities, the presence of which had been later demonstrated by other methods of physical examination.

A special appropriation of $5,000 has just been passed by the State Legislature to be devoted to stamping-out the smallpox outbreaks in different parts of this State. It is confidently expected that Governor Stone will sign the bill at any early date, so that the money may at once become available.

A resolution has been adopted by the Board of Education urging Councils to appropriate the sum of $45,000 for the purpose of making possible a daily inspection of the public schools, by of special corps of physicians, each of whom will receive a salary of $300 per year. The subject is also being taken up by the County Medical Society, and the following committee from this body has been appointed to confer with the authorities on the matter: Drs. J. Madison Taylor, W. W. Keen, Wm. Campbell Posey, H. F. Anders, S. D. Risley, L. S. Somers, Lawrence Flick, and Dr. Thos. B. Fenton.

Statistics just made public regarding the physical and mental causes for non-attendance at the public schools of minors between the ages of 8 and 16 years show the following etiological factors among the 9985 children included in the census: Mentally incapable, 111; blind, 37; deaf and dumb, 45 otherwise physically unable to attend, 664. The non-attendance of the other children is accounted for by other causes not relating to their physical and mental conditions.

The Faculty of the Jefferson Medical College has inaugurated a system of student-rule at this institution, similar to that prevailing at other institutions of learning, notably at Cornell, Princeton, and Columbia Universities. In compliance with the desires of the Faculty, a Student's Committee has been formed, composed of the four class-presidents, and 16 other members chosen to represent the different classes. To this committee the Faculty is to refer for adjustment all questions of disorderly conduct among the students, questions of damage to college property, and other infractions of the rules,

The management of St. Mary s Hospital has acquired property adjoining the present hospital building, upon which it is proposed to erect next spring a large addition to this institution. The present hospital contains about 100 beds, but the proposed extension will provide accommodations for double this number of patients, besides admitting other needed improvements.

Dr. Simon Flexner has been installed as the new patron of the John Guiteras Medical Society of the University of Pennsylvania as the successor of Dr. Guiteras whose chair Dr. Flexner occupies.

Dr. S. Weir Mitchell delivered during the past week two lectures on "The Conduct of Life" before the upper classes of the Girls' High School.

The total number of deaths in this city for the week ending November 25th was 386, being an increase of 21 over the number reported last week, and a decrease of 63 from those of the corresponding week last year. Returns of contagious disease were made as follows: Enteric fever, 43 cases, 4 deaths; scarlet fever, 72 cases, 4 deaths; and diphtheria, 127 cases, 24 deaths.

MEDICAL MATTERS IN CHICAGO.

[From Our Special Correspondent.]

ANNUAL REPORT OF EVANSTON HOSPITAL—VIOLATORS OF MEDICAL PRACTICE ACT—VITAL STATISTICS—REPORT ON CHILD STUDY—CHICAGO PHYSIOLOGICAL SCHOOL FOR NERVOUS AND DELICATE CHILDREN — MEASLES AND WHOOPING-COUGH ADDED TO CATEGORY OF CONTAGIOUS DISEASES —WORK OF ILLINOIS SOCIETY FOR THE PREVENTION OF CONSUMPTION—CHICAGO MEDICAL SOCIETY—VESICO-RECTAL ANASTOMOSIS.

CHICAGO, November 27, 1899.

THE eighth annual report of the Board of Directors of the Evanston Hospital has been issued. It is the first report that has been issued since the occupancy of the new building by the hospital, and reviews the work of the first complete year in the new quarters. The various reports of the officials show that the hospital is in a flourishing condition, and many plans are in mind for the enlargement of the scope of the work for the future. The attendance at the monthly meetings has shown a higher average than any previous year. A total of 2224 calls were made during the twelve months on 298 patients. The money and donations that have been so freely given have been well placed, and the directors hope that in the future it will be possible to place more nurses on infectious cases, and to have a nurse to carry on the work during the vacation months.

The attorney for the State Board of Health, Mr. Barnes, finds it extremely difficult to convict violators of the Medical Practice Act. He declares that such violations are numerous, that one cannot take a street-car ride without observing their signs on either hand. Juries are slow to find verdicts of guilty even where the evidence is conclusive. Every encouragement should be given the prosecutor for the State Board of Health both in his treatment of unsanitary lodging-houses and in his handling of medical montebanks. On the other hand, his procedure in every case should be so well defined and aggressive that there would be no room for doubt on the part of the offender that the prosecution was sincere, and that one conviction, if the violation did not cease, would be speedily followed by another, with the added penalty for a second offence.

Little change in public-health conditions is noted in the weekly bulletin of the Health Department issued on the 20th. There were 451 deaths recorded last week from all causes, but the excess of 11 over the previous week is due to the return of belated coroner's certificates, 5 being the victims of the New England mills explosion. Little

abatement of the diphtheria and scarlet-fever mortality is shown. Deaths from diphtheria were 24, the same as the previous week, and 9 more than in 1898, and while there were 2 deaths fewer from scarlet fever last week than the previous week, there were 12 in excess of the corresponding week last year. The *Bulletin* says: "It is to be feared that the stationary mortality-rate from these diseases does not indicate the culmination of the epidemic, but is due rather to the unusually mild weather, which favors ventilation by allowing doors and windows to be kept open. Inquiry among physicians shows that there is no diminution in the number of new cases, and there is reason to fear that when the weather turns cold the death-rate will increase."

Dr. W. S. Christopher and the members of the Committee on Child-study will have another report to present next month. Examinations are being conducted and much valuable information is being obtained. The improvements and innovations suggested by this committee for the better sanitary arrangements of the schools will be given due consideration by the Board of Education. The plan of Dr. Christopher for medical inspection in the schools has been amended to conform with an opinion from Attorney McMahon. The Board has no authority to exclude children from the schools except in cases of emergency. The amendments, as offered by Dr. Christopher, restricted the resolution to cover cases of emergency, when the pupil may be debarred from school, the former reading being that the pupil having been absent four days should be detained twenty-four hours pending examination. The emergency provision was held to be in force at present on Dr. Christopher's statement that diphtheria has crossed the line of epidemic. The medical inspectors will number fifty, and will receive $50 a month for the time they are on duty.

Part of the training work of the Chicago Physiological School for Nervous and Delicate Children will be to fit nurses for duty with this class of children. This new departure has been taken up at the suggestion of Dr. Nicholas Senn.

Measles and whooping-cough have been added by the Health Department to the category of contagious diseases which must be reported by attending physicians.

The formation last summer of the Illinois Society for the Prevention of Consumption is to be followed this winter by an active campaign seeking legislative aid for the care and cure of consumptives. The organization by the City Council of a special milk-inspection department, which shall prohibit the sale of milk not previously certified as non-tuberculous, will be urged, and the State will be asked to erect a State sanatorium for consumptives. The State Board of Health will recommend the building of the sanatorium. Pamphlets explaining the dangers of the various forms of tuberculosis will be distributed, in order to educate the public regarding the spread of the disease, first among cattle, and subsequently among people. The officials of the Society believe that with the assistance of Mayor Harrison, Health Commissioner Reynolds, and Governor Tanner they will be able to pass legislative measures without difficulty. Following the establishment of the sanatorium, legislation will be asked for providing for the compulsory isolation of consumptives in virulent stages. It is a question whether consumption is spread more by consumptive cattle or by persons. It is believed the sale of milk from untested cattle is doing much to spread consumption. The idea of instituting a city inspection has been talked of by Dr. Reynolds and is favored by veterinarians. Dr. William A. Evans, a member of the Tuberculosis Committee of the American Medical Association, its preparing a report on the prevalence of tuberculosis in all parts of the world. The report probably will lead to making national in scope the movement for legislation for the eradication of consumption. It is believed that before long Congress will be asked to recognize the danger of the spread of consumption in this country, and to establish a national sanatorium.

At a meeting of the Chicago Medical Society, held November 22d, Dr. Jacob Frank demonstrated vesico-rectal anastomosis, a new operation for exstrophy of the bladder, upon a live dog. This operation consists in anastomosing the bladder to the rectum by means of the Frank decalcified bone-coupler. The ureteral openings in the bladder are not anatomically interfered with, hence a for tification against ascending infection. Dr. M. Herzog made the pathological and bacteriological examinations, and the results were far more satisfactory than those of ureteral implantation, in which kidney infection resulted in every case. The conclusions drawn were: First, that the recovery of the dog and the macroscopical appearance of the tissue do not necessarily signify absence of infection; second, in dogs killed thus far the operation of vesico-rectal anastomosis can be performed without a resulting kidney infection. At the same meeting Dr. Herzog also made a post-mortem examination of a dog operated on twenty-four weeks ago, and showed the condition of the urinary tract, which was very satisfactory.

CORRESPONDENCE.

OUR LONDON LETTER.

[From Our Special Correspondent.]

REPEAL OF THE DOG-MUZZLING ORDINANCE—CASE OF "THIRD-GENERATION" SYPHILIS—ARTIFICIAL EYELASHES—HOSPITAL SHIP OF THE AMERICAN WOMEN IN LONDON—SCHOOL-MEALS FOR UNDERFED CHILDREN—55,000 STARVELINGS IN LONDON—ALLEGED INCREASE OF INSANITY IN IRELAND—GOVERNMENT CARE OF THE "INNOCENT"—POPULATION OF WORKHOUSE AND CRIMINAL ASYLUMS ALMOST STATIONARY.

LONDON, November 19, 1899.

MUCH joy is expressed in the dog-loving circles over the repeal of the muzzling ordinance in London but this does not seem to be echoed very cordially by the medical profession. The practical disappearance of hydrophobia for nearly a year past, on the strength of which the ordinance was rescinded, was in all probability largely due to the muzzling precautions themselves, and fear is expressed that the new departure may be followed by a marked in-

crease. One boon the ordinance has certainly conferred upon the community is the practical elimination not merely of the stray and ownerless dog, but of the cur of all degrees. Over 30,000 dogs were captured in the first five months of its operation and of these but 6000 were claimed by their owners.

A most rare and unusual case, which we believe is almost unique in surgical annals, was presented by Mr. Jonathan Hutchinson at his clinical demonstration at the "Polyclinic" this week. This was a syphilitic child born of and accompanied by a mother who herself presented unmistakable signs of inherited syphilis. As Mr. Hutchinson declared the nature of the disease in both mother and child to be absolutely unmistakable, there can be little question as to the certainty of the diagnosis, and as the mother by virtue of the hereditary infection would be immune to the disease, the probability would be that the infection came directly from the father. He unfortunately, however, was not present nor could, under the circumstances, any conclusive history of the occurrence of the disease in him be obtained, but the possibility of a transmission to the third generation is so extremely remote that Mr. Hutchinson is strongly of the opinion that this must have been the method of infection.

The possibilities of cosmetic surgery are only just beginning to be realized, according to our lay contemporaries. One of them has discovered another method of adding to the attractiveness of the human face by the insertion of what it terms "artificial eyelashes." These are manufactured by the delightfully simple process of passing a needle threaded with hair through the lid and out at its edge and then cutting off one end of the hair close to the skin, and the other at such distance from the edge of the lid as may be desired to make the eyelash. The journal, however, does not report or even supply photographs of any actual cases of this interesting embellishment; and in view of the fact that at least twenty or thirty such stitches would have to be taken to make even a decent imitation of a row of eyelashes and that the hair threads would cause intense irritation from the very start and be almost certain to result in a beautiful crop of styes within forty-eight hours, to say nothing of such a minor detail as the impossibility of getting the downward slope given by such a method of introduction converted into the beautiful upward curve that is required in an eyelash, we may be pardoned for exercising a good deal of healthy scepticism on the subject. We fully admit the truth of the old saw that "pride feels no pain," but we honestly doubt whether this painful procedure could ever be carried out with success. The journal in question cites an alleged *Médécine Française* as its authority for the statement.

The generous scheme of the American women in London to supply a hospital ship for South-African service is developing with genuine Transatlantic rapidity. One of the great steamship lines, the Atlantic Transport Company, has placed at their disposal a ship which by a double coincidence is curiously appropriate for the service, first, in that its name is "The Maine," and second, that it is the twin ship of the "Missouri" which was fitted out for the same purpose during our Cuban campaign. Offers of assistance come in from every hand. The well-known chemists, Burroughs & Welcome, have volunteered to provide the entire equipment of medical stores, and abundant contributions have been received from the members of the society and other Americans resident in London.

A gratifying proof of the growing influence which medical and hygienic opinions are coming to exercise in educational circles is afforded by the serious discussion of the London School Board of a proposition to make formal provision for providing school-meals, for underfed children under their instruction. It has long been vigorously urged by our profession, first, that the greatest care should be taken to see that no actual physical defects prevented school children from making use of the instruction offered to them, and, second, that their physiological condition as to supply of food and sleep must be carefully watched, in order that teaching, no matter how admirable, may be either grasped or retained by the pupils. In the terse and homely phrase of Luther they have insisted that "empty belly hath no ears." Formal provision for school-meals has been made in several of our American cities, and a voluntary association for the same purpose is already in existence in London with a number of similar local societies more or less under its control. But the urgent need of the whole scheme is that of bringing it under one central authority and providing some means of preventing imposition by non-deserving pupils upon this noble and admirable charity. The urgent necessity of such a movement can be seen in the report of the existing Society to the effect that no less than 55,000 children in London alone go to school so insufficiently fed as to be practically unable to profit to any reasonable extent by the instruction offered them. It is one of the most hopeful indications in the New Education that the physiological basis of brain work and the high value of expert medical advice in every department of the executive arrangements of the school are given a leading if not a foremost place. The day is rapidly approaching when a school physician will be regarded as indispensable as a school teacher.

The lay press is making much mournful capital out of the steady increase of lunacy in Ireland, as apparently demonstrated by the reports of the inspectors for the current year. These, upon the face of them show a gross increase of over 7000 registered lunatics in the past nineteen years, or nearly 60 per cent. This would give a steady increase of about 3 per cent. per annum, which was almost the exact increase registered in the year 1898. In the mass these figures are undoubtedly alarming, but when we come to analyze them more carefully we see that a large percentage of this increase is simply another illustration of the general process which has been taking place in the spread of civilization, and the introduction of more humane and efficient methods of care for these unfortunates. It will be remembered that for a number of years the increase of insanity in England and Wales was a fruitful source of alarm to statisticians of a pessimistic turn of mind, but this is now generally recognized as having been simply

due to the steady and desirable process of bringing lunatics, who were formerly permitted to remain with their families or even to wander about the country as beggars and objects of charity, within the doors of appropriate asylums. This is supported by the fact that for nearly three years past the percentage of lunacy has remained almost stationary, indeed in some parts of England has begun to diminish. Ireland is of course, in most respects, anywhere from a generation to a century behind either England or Scotland in her social organization, and is now beginning to pass through the same stage which has already been surmounted by the sister countries. Another element which cuts an important figure in this connection should also be borne in mind, and that is, the singular and touching attitude assumed toward these unfortunate individuals by the bulk of the Irish peasantry. The lunatic is still looked upon as a "changeling" or individual bewitched by the gods or the fairies, and to a considerable degree under their special protection. Even his name has been softened down to the almost affectionate pseudonym of "*innocent*" and far from being an outcast from the community he is kindly treated and even a welcome guest. The blessing and the curse of an innocent are both regarded as peculiarly potent, and the latter is especially to be dreaded. Hence the recognition that the poor "natheral," or "object," is really the victim of disease, and as such ought to be confined in an appropriate hospital is extremely slow of acceptance by the Irishman.

The great bulk of the increase recorded is in the population of the great government asylums, into which these unfortunates are being steadily gathered. The population of work-house asylums, representing the acute cases has remained almost stationary, as also that of private establishments, while the number of the criminal insane has slightly diminished.

HEMORRHAGE IN CASES OF JAUNDICE.

To the Editor of the MEDICAL NEWS:

DEAR SIR:—In the discussion on Richardson's paper reported in your issue of November 25th, no reference was made to the importance of taking the coagulation time of the blood in cases of chronic jaundice prior to operation. The tendency to bleeding in these cases is well known, and the capillary oozing, sometimes so serious after or at operation, is probably due to the marked impairment of the power of coagulation in some cases. We have found the coagulation time to be ten or twelve instead of the normal three or four minutes. Wright's tubes for taking the coagulation time are easily procured, or in their absence a good-sized blood-drop on a slide may be carefully watched.

W. OSLER, M.D.

JOHNS HOPKINS HOSPITAL,
BALTIMORE, November 28, 1899.

To Abort Acute Bronchitis.—

℞ Acetanilid, Salol } aa. . . . . gr. xxx

M. Div. in chart. No. xii. Sig. One powder every four hours.—*M. G. Price.*

TRANSACTIONS OF FOREIGN SOCIETIES.

French

ABSCESS OF LIVER AT AN EARLY AGE—RESUSCITATION BY TRACTIONS OF THE TONGUE AFTER APPARENT DEATH LASTING FOR HOURS—TUBERCULOSIS MADE RAPIDLY WORSE BY CHILDBIRTH—RADICAL CURE OF HERNIA WITHOUT BURIED SUTURES—FISH AS TRANSMITTERS OF TUBERCULOSIS—SOME RECENT ADVANCES IN SURGICAL METHODS—OSSEOUS TUMORS—RESECTION OF MORE THAN TEN FEET OF INTESTINE—SPLENECTOMY AND SPLENIC LIGATURE—OBJECTIONS TO IMMOBILIZATION OF TUBERCULAR JOINTS.

AT the Academy of Medicine, September 19th, CADET DE GASSICOURT gave the history of a patient who was operated on at the age of two years for abscess of the liver. The abscess was opened wide, and about a pint of inodorous pus escaped. The cavity was washed with a solution of boracic acid and drained. The washing was repeated daily and recovery was prompt and satisfactory.

At the session of October 3d LABORDE mentioned fourteen new cases of the restoration of persons apparently dead by long repeated tractions upon the tongue. In one-half of these instances, the tractions were kept up from twenty to sixty minutes. One patient was worked over in this manner for three hours before he could be brought back to life. The exact time during which a patient may remain apparently dead and then be resuscitated has never been determined, either by experiments upon animals or by the treatment of the living, but from the results here quoted it is evident that resuscitation is possible after a much longer interval than one might at first suppose. By the old methods, when asphyxia had lasted more than five or six minutes, respiration could not be re-established. By tractions upon the tongue, however, persons have been brought back to life who were thirty or even forty minutes under water.

At the session of October 17th DOLERIS mentioned three cases which support the popular belief that childbirth hastens tubercular processes in the mother. One woman who had chills and hemoptysis, gave birth to a non-tubercular child at the sixth month of pregnancy. The child died in six hours. From the following day the mother grew rapidly worse with cough and abundant expectoration, the sputa containing tubercle bacilli. In two weeks she was dead. The autopsy showed extensive and active lesions in both lungs and in the intestine; but there were no miliary tubercles, thus showing that there had been a lighting up of old lesions, but no general infection through the blood. That this may also occur, was shown by another case which also terminated fatally. Blood from the heart of this patient, when inoculated into guinea pigs, produced tuberculosis. Thus in two ways childbirth may cause a rapid extension of the tubercular lesions.

At the Society of Surgery, October 4th, MONOD discussed Vanverts' method of curing hernia without leaving sutures permanently buried in the tissues. For the radica cure of inguinal hernia, the sac is exposed, ligated, and cut away. The spermatic cord remains behind the

abdominal walls which the operator is about to suture in a single layer. The needle is passed through skin, aponeurosis of the external oblique, and such portions of the internal oblique and transversalis as are available, and then it is passed outward through the opposite aponeurosis and skin. This is essentially the method employed by Villar and others to close laparotomy wounds. Of twenty patients operated upon by this method eleven were seen some time later. All of the eleven were free from recurrence, and the results were described as excellent.

At the Society of Biology, October 7th, NICOLAS and LESIEUR told of the results they obtained by causing young fish to eat sputum known to contain tubercle bacilli. Aften seven months the fish were killed and the bacilli were found to be present in every organ of their bodies which was examined. The muscular portions of these fishes were fed to guinea-pigs, and in the nodules and abscesses which formed in the bodies of the pigs tubercle bacilli were readily demonstrated.

The Thirteenth Congress of the French Association of Surgery was held in Paris from the 16th to the 23d of October. Professor Antoine Poncet delivered the address of welcome, during which he mentioned some of the more recent discoveries of surgical interest. With reference to the drainage of wounds he took the somewhat novel position that in every wound, no matter how carefully made, there is always a possibility that blood or serum may collect in some portion of it and give rise to future trouble if the skin unites by first intention. His conclusion therefore is that primary union should never be aimed at until a wound has been methodically drained, no matter how aseptic it may appear. No one ever regrets having drained a wound; he said on the other hand many surgeons have had reason to regret their attempts to secure primary union without drainage. Take, for example, a laparotomy for appendicitis in the interval. It it preferable to leave an open wound which may be tamponaded without pressure. In this matter infectious peritonitis with possible death is avoided, as is also the occurrence of a hematoma or suppuration of more or less gravity, requiring a re-opening of the wound and a delay in the final recovery. If this plan of treatment is desirable in the case of aseptic wounds, it is equally so of course if the character of the wound is doubtful. The question of disinfection of a wound must then also be raised. If a wound is known to be infected this question will naturally be settled in the affirmative.

POLLOSSON and BÉRARD discussed the question of osseous tumors. In spite of attempts to settle the etiology of tumors in general, it is still necessary to classify them solely by their histological differences. Skiagraphy, however, has furnished some points which aid the surgeon in assigning a bony tumor to its proper place. It is of assistance in distinguishing the epiphysial tumors from chronic osteomyelitis and from tuberculosis; in distinguishing diaphysial tumors from chronic osteomyelitis and from syphilis; in distinguishing encapsuled tumors from diffuse tumors, with or without pathological fracture; and, finally, in distinguishing tumors associated with formation of new bony plates from other neoplasms. The surgeon should accustom himself to the skiagraphic examination and should not rely simply upon photographs. This is especially true in the case of sarcoma with myeloplaques, the only variety of sarcoma in which a partial operation is justifiable. Skiagraphy is equally serviceable in determining the exact condition of patients who appear cured. The authors attempt to determine the average period of recurrence of different kinds of tumor after their removal. Round-celled sarcomata and malignant chondromata usually return in less than a year. If the patient is not operated on, spindle-celled sarcomata will produce death in from one to three years; round-celled sarcomata in two years or less; osteo-sarcomata in a year or sixteen months; and malignant chondromata and epitheliomata in about a year. Amputation is sometimes indicated even if recurrence is almost certain to follow, for the reason that the patient under such circumstances is usually saved the pain and distress caused by ulceration, for death from dissemination of the tumor generally comes before the recurrence has time to undergo degeneration.

MONTPROFIT reported the resection of 3.1 meters (122 inches) of intestine from a patient who suffered from an inguinal hernia as large as the adult head. The hernia was irreducible and the intestine so bound together and to the surrounding tissues by adhesions that it was impossible to free it or to return it into the abdomen. It was, therefore, resected and the ends anastomosed laterally. Of the portion of intestine resected thirty-two inches were large intestine, comprising the cecum, the ascending colon, and a little of the transverse colon, while the balance was made up of small intestine. The patient recovered.

JONNESCO since 1896 has removed twenty-nine spleens either for hydatid cyst or on account of enlargement due to malaria. Ten patients died, two from hemorrhage and eight as a result of pulmonary complications. Experimentally, he satisfied himself that atrophy of the spleen cannot be obtained by complete ligature of its vessels. Under these circumstances the spleen rapidly becomes gangrenous. Ligature of the artery or of the splenic veins alone produces a slight atrophy, while ligature of the greater part of the pedicle produces a rapid atrophy. He also determined that if adhesions are produced between the spleen and the abdominal wall it is possible to divide its pedicle without fear of gangrene. It follows therefore that if at operations a spleen is found to be too adherent for removal one may safely divide its pedicle and allow it to atrophy.

CALOT said that in the treatment of white swelling, immobilization might be avoided and the lesion be attacked by injections into the joint cavity. As soon as the treatment of the tubercular focus is finished, that is to say at the end of four to six weeks, attempts should be made to develop the movements of the affected joint, using for this purpose apparatus made especially for the joint affected, and combining the treatment with daily massage of the atrophied muscles. In this manner one can obtain a real cure of a tubercular joint, removing the disease, and preserving the usefulness of the joint.

LUCAS-CHAMPIONNIERE said that the idea that an inflamed joint must be kept immobilised is a false one. A distinction should be made between functional rest of a joint and absolute immobilization. He strongly objected to putting a tubercular joint up in plaster. This mode of treatment is indicated only if pain persists. Otherwise injections of camphorated naphthol combined with mobilization form the best treatment. The speaker said that he could mention many successes of this method of treatment, one striking illustration being a case of a boy who from the fifth to the seventh year suffered from tibiotarsal tuberculosis, but who recovered so perfectly that he was able to perform his military duty.

SOCIETY PROCEEDINGS.

THE NEW YORK ACADEMY OF MEDICINE.—SECTION ON PEDIATRICS.

Regular Meeting, Held October 12, 1899.

HENRY KOPLIK, M.D., in the Chair.

DR. HENRY HEIMAN presented two interesting cases of nervous disease in children in which one of the principal symptoms was advancing blindness. In the first, a girl aged six years, rather large for her age, there were no symptoms except that she had never been very bright, and had not developed rapidly. Ophthalmoscopic examination showed that optic atrophy was developing. Her general health was good. In the boy the history is of rather more importance. He did not get his first tooth until thirteen months, but he learned to talk and walk at fourteen months. He fell about eight months ago against an iron railing, but it is doubtful if this was not rather an effect of his incipient blindness and ataxia than a cause of his present condition. The parents admit that he was never very bright. He is now almost blind. His blindness and ataxia seem to indicate a tumor of the pons, with some pressure on the cerebellum.

DR. WOLFE gave the results of the examination of the eyes in this latter (the boy's) case. There are choked discs on each side, and the external eye muscles are greatly interfered with, the abductors on both sides being especially affected. All movements of the eye are limited.

DR. WIENER said that in the first case the pathological condition present seemed to be a chronic internal hydrocephalus, an affection described some years ago by Quincke of Kiel in Germany. The presence of too much fluid in the ventricles of the brain in the cases causes pressure symptoms and atrophy of the optic nerves. The absence of any focal symptoms substantiates this diagnosis. The prognosis of the case is by no means absolutely fatal. Patients may often live for years. The best treatment is by inunctions of mercury. In a number of reported cases this has done good. In the second case, that of the boy, the involvement of both abducens muscles of the eye points to the fact that the tumor is very probably situated in the superior peduncle of the cerebellum. Its situation here would seem to be confirmed by the fact that the pupillary reflexes are perfectly normal. In this case a double trephining by relieving the pressure within the brain case might save whatever of sight is left, and such being indicated in the case, should certainly be undertaken. While in the first case lumbar puncture should be undertaken in order to relieve the pressure of the accumulated cerebrospinal fluid within the brain; in the second case lumbar puncture would not be advisable. The tumor is situated very close to the fourth ventricle, and any change of the pressure condition might lead to the exertion of some pressure upon the fourth ventricle and bring on a fatal termination.

DR. JACOBI said that he would certainly advise lumbar puncture to be tried in the first case; the operation was an extremely simple one, and could be performed without subjecting the patient to any risk.

DR. KOPLIK said that as a rule there was absolutely no danger in lumbar puncture, and it should be used more than it is at present, especially in such cases as the first one. Out of the thousands of cases in which lumbar puncture has been done up to the present time there seems to be only one case in which it has caused a fatal issue.

The first paper of the evening, entitled

A CASE OF SCURVY,

was read by DR. WALTER LESTER CARR. The paper, with the interesting discussion which it called forth, will appear later in the MEDICAL NEWS.

The subject of the evening was then taken up,

ANTIPYRESIS IN THE FEBRILE DISORDERS OF INFANCY AND CHILDHOOD.

The first paper on the subject was read by DR. ABRAHAM JACOBI, and was entitled

ANTIPYRETIC DRUGS, THEIR USE AND ABUSE IN THE TREATMENT OF FEVER.

Antipyresis may be obtained in many different ways. A direct method is the destruction of the microbes that cause the fever by the use of antiseptics. Then it may be secured by paralyzing the circulation, as by the use of veratrum viride or by digitalis. The effect of digitalis is, however, very unsatisfactory in this respect, and requires the use of more of the drug than is advisable. A lowering of temperature may be secured by acting upon the sources of heat production or by increasing heat elimination. Quinin acts upon the cells of the body and so prevents the production of as much heat as usual. There are drugs that produce a cutaneous hyperemia and free perspiration, and so lead to the elimination of heat. It has always been a question as to whether we could kill microbes once they had gained entrance to the blood and tissues of the patient by means of antiseptics. We can, but it is apt to kill the patient. We may paralyze their action, as Prudden did, by dilute carbolic acid. By methods of the same kind there is no doubt, despite all that has been said to the contrary, that we can make antisepsis effective in the cavities of the body.

Quinin acts upon the cells because it produces a fall of temperature even after section of the cord. Phenol acts upon the central and peripheral nervous system. Antipyretics of this kind undoubtedly produce good results. It has been objected, however, that high temperature is

Nature's conservative reaction by which she kills bacilli and forms antitoxins. Unfortunately fever kills cells also, and it would be absurd to talk of the beneficent effects, for instance, of heat in sunstroke. The mortality of fever is in almost exact proportion to the height of the temperature. Persistent high temperature kills of itself, while a remittent fever, though very high at intervals, does not. Fever depresses all cellular energy, and must be combatted.

There are, however, no ironclad rules in the matter. A temperature that is extremely harmful to one patient may have little effect on another. A disease may begin with high temperature and not exhibit any of it later. Whenever temperature is injurious it must be treated. To let high temperature quicken the breathing and heart action in pneumonia when so much depends on the activity of these functions, would be eminently foolish. Whenever high temperature threatens to produce convulsions the indication is to lower it. This is conceded by everyone. When there is a possibility of such a termination, or of any other serious symptom the same indication holds. Death has occurred from persistent high temperature even during convalescence from disease. Children stand high temperatures very badly. They are much more affected by any harmful influences than are older people, and the same holds true for small animals. Experimentally dogs two days old have starved to death in two days; at five years old they live for thirty days. The same thing has been demonstrated in pigeons.

It must be remembered that children are very different from adults in certain respects. They have less blood, for instance. A child's blood represents one-nineteenth of its body weight; an adult's one-thirteenth of the body weight. There is less fibrin in their blood, and it is of less specific gravity. Hence the facility with which children become hydremic. Antipyretics cause rest, and so save the patient from harmful influences that would perhaps seriously affect the developing structures. Especially when water is indicated hydrotherapeutic measures will be found to give the child refresning sleep. Antipyretic drugs give in a measure like results. Patients have idiosyncrasies, and then certain drugs must not be used. But after all it is not a Greek name for a disease, but a human being that is to be treated. Quinin is very effective wherever there is oscillation of temperature. It is a true antiperiodic as well as an antimalarial drug. For persistent high temperature it is not so effective. It may be given to children mixed with chocolate or in coffee syrup, and will be taken readily. In chronic malaria ergot has proved a very effective drug in my hands for nearly forty years. When first used it sometimes contracts the spleen and brings on an acute attack of malaria by throwing into the circulation malarial parasites that have been lodged in that organ. In such cases it is often well to combine it with quinin.

Salicylic acid is an effective antipyretic that acts centrally. It is very irritant, and so the sodium salt is preferable for administration. Oleum Gaultheria, which is practically methyl salicylate, is effective when applied externally in ointments. Antipyrin has been used a great deal abroad. The skin eruptions that it causes show that it produces changes in the walls of the blood-vessels. Certain patients have an idiosyncrasy against it. The drug seems to be inactive in brain disease. Salipyrin is an allied drug for which there is less idiosyncrasy. Acetanilid does not disturb the stomach and skin, but it should not be used because it is a poison to the tissues, and produces methemoglobin. Phenacetin resembles it, but is not so strong. Lactophenin sometimes produces jaundice. I have seen it once, and others report the same thing. When patients are weak, alcohol, by acting as a stimulant and dilating the peripheral vessels, causes a fall of temperature. This substance has been much abused, but still it should not be utterly condemned. It is too much to say, as has been said, that practitioners give alcohol just in proportion to their ignorance. In the infectious fevers I consider alcohol of the greatest possible service. In septic cases with high fever where 100 cubic centimeters of alcohol does no good. 200 to 300 may do good. I have seen 500 cubic centimeters, that is, 2 pints, taken with advantage in the twenty-four hours. As soon as the febrile stage is passed the alcohol causes delirium. It should not be given in the early stages of such diseases as pneumonia in which hyperexcitation of the patient is the rule. while it is of great service later. In chronic diseases it very often replaces food, and should be used freely and persistently.

DR. SIMON BARUCH read a paper, entitled

HYDRIATRIC MEASURES IN THE MANAGEMENT OF THE FEBRILE DISORDERS OF INFANCY AND CHILDHOOD, WITH PRACTICAL DEMONSTRATIONS OF THE VARIOUS HYDRIATRIC PROCEDURES.

He said in brief that there are certain differences in the hydriatric treatment of the diseases of childhood and of those of adults which justify the reading of a special paper on this subject. In general, it must always be borne in mind that water is something more than an antipyretic, that it is a real and important therapeutic measure. It is the child that must be treated in every disease, and not the fever which the child may have. Our object is to assist Nature in her efforts to overcome the disease, and not to jugulate the disease. For the restlessness of fevers in children nothing is more efficient than cool bathing. The water need not be at first so cool as to shock the patient. If we begin with the water at ninety degrees, getting it cool to eighty or seventy-five degrees, and then three hours later begin with water at five degrees lower in temperature, we will gradually accustom the patient to the application of cold water without shock. The refreshing sleep which occurs so soon after a cool bath will quickly persuade the parents to abandon any prejudices that they may have had against the bathing treatment. It is to be remembered that the vessels of the skin are capable of holding two-thirds of all the blood of the body. When they are distended because of the weakness due to fever, an excellent opportunity is given for bringing the temperature down readily and easily. But something more than reduction of temperature is accomplished by the use of the bath. It is the best possible stimulant to the nerves and to the

vascular system. This stimulation causes increase of function by the tonic effect it produces, and this, rather than antipyresis, is the main object of hydrotherapy.

In the use of hydrotherapeutic measures some almost incredible mistakes are made. I remember once being called in consultation by a physician who had a case of scarlet fever with a temperature of 106°F. which he was not able to bring down by means of cold baths. I found when I got to see the patient that he had been given but one bath, and that without friction. Shock had ensued, and the parents had very naturally objected to any further bathing. But by beginning with water that was not very cool, with carefully rubbing the child while it was in the bath, I succeeded in bringing the temperature down without much difficulty. Shock need not be feared in these cases. The rubbing should not be done with a sponge, as is so often the case, but with a rather coarse cloth that holds plenty of water. There are certain diseases that do not stand hydrotherapy very well. Pneumonia and scarlet fever are the most important among them, but with care proper measures can be adapted for the treatment of even these diseases with excellent results. Some of the best authorities have expressed in no uncertain tones their approval of hydrotherapy in children's diseases, among them I may mention Jacobi, Baginsky, Hutenel, Furbringer, Guimon, Jurgenson.

Dr. Baruch then demonstrated the method of applying the various compresses and packs that are used in hydrotherapy. He insisted especially that the wet compresses should not be covered with oiled silk, for the heat of the patient would very soon make poultices of them. A compress should always be covered with a piece of flannel or some other woolen material that permits of slow evaporation. The various packs should be wrapped closely around the body and the woolen covering above that should also be wrapped closely so as to permit the circulation of as little air as possible between the wet cloths and the body.

THE NEW YORK ACADEMY OF MEDICINE.

Stated Meeting, Held October 19, 1899.

THE President DR. WILLIAM H. THOMPSON in the Chair.

The paper of the evening read by DR. CHARLES L. DANA, was entitled

LOCOMOTOR ATAXIA; ITS PATHOLOGY, PATHOGENY, IMPORTANT SYMPTOMS AND TREATMENT.

DR. DANA said that he did not hope to say much that was new on so old a subject as locomotor ataxia, but wished to give a review of its present position in the light of his own clinical experience. It is essentially a nervous disease with changes due properly to the disease only in the nervous system. All other changes in the body are but secondary. The peripheral sensory neuron is the main seat of the disease. It is not essentially a disease of the spinal cord but rather of the spinal ganglion and its central branch, though the peripheral branch is also affected.

The functions performed by different sets of nerves in the sensory columns, true sensation, the muscular sense, pain, the temperature sense, etc., are developed at different periods in the growing organism. They are evidently carried by different sets of nerve-fibers. Tabes picks out these sets of fibers for its attack in varying ways and at different times in different individuals. In some cases the prominent symptom is ataxia, in others the absence of reflexes, in still others visceral or rectal sensory crises, or optic atrophy.

The disease attacks different segments of the cord in different cases. In some the lumbar segment is mainly affected, producing symptoms in the lower limbs; in others the dorsal segments are involved producing abdominal symptoms. At times the cervical enlargement is affected when we have the symptoms of superior tabes mainly affecting the arms and hands. At times the affection strikes even higher up, affecting first the nerves to the eye, which are homologous in large measure with the spinal nerves. At times even the motor roots are affected as the ocular palsies denote. At times the cerebral ganglion cells are affected, giving a set of cerebral symptoms that correspond in certain ways to the spinal ones. For the delusions of grandeur of general paralysis correspond very closely to the hyperesthesia and neuralgic crises which occur in the distribution of the spinal nerves.

We are practically agreed now that locomotor ataxia is always luetic, that is, if there were no syphilis there would be no tabes. It is not syphilis, primary, or secondary, or tertiary, but practically a history of preceding syphilis is present. The disease may not always be the lues of the syphilographer. Within the last few months, I have had a patient who having developed a primary sore was treated very carefully for syphilis by all the approved methods, including a series of hot baths at Hot Springs. He never had any other symptoms of syphilis except the primary sore. Yet ten years afterward he developed tabes. I have had a patient who, noticing a slight abrasion after suspicious intercourse, went to Agnew in Philadelphia. The symptoms were so slight, Agnew absolutely refused to treat him. For five months he insisted on calling on Agnew with regard to the matter. Agnew absolutely insisted that he had no syphilis. Yet later he developed tabes. How different all this is from typical lues. It would almost seem that there was another poison introduced at the same time with the syphilitic virus that produced the disease, or that there was some by-product of the syphilitic process. Certainly, there is something in the process that syphilographers do not ordinarily describe.

Two important factors in the etiology of tabes are heredity and overexertion. By heredity I mean not that there is a distinct history of transmission of family nervous disease, but that there is a neuropathic tendency. The basis on which tabes, like its cousin, hereditary ataxia, develops is a congenitally weak set of sensory neurons. It is, as it were, a teratological defect of the spinal nervous system. As to overexertion, tabes occurs particularly in people who are very much on their feet, as in salesmen, commercial travelers, soldiers and the like. It occurs in sailors almost never. The reason for their escape being seem-

ingly the perfectly healthy circumstances under which they live as regards fresh air.. Overwork and alcohol do not seem to me to count for much in the etiology of the disease, and exposure to cold, despite the number of authorities who unite in describing it as a causal factor, has never seemed to me to enter very actively into the etiology of the disease.

With regard to symptoms, the two classical symptoms are the Argyll-Robertson pupil and the loss of the kneejerk. The pupillary symptom is almost sufficient by itself to justify the diagnosis of tabes. The loss of the kneejerk with one other symptom is sufficient for the diagnosis. In order not to miss the disease it is important to remember that about ten per cent. of the cases begin anomalously. A number of patients in my practice have presented rectal hyperesthesia as the first symptom. It was usually supposed that they were suffering from fissures, or piles or the like. Surgical intervention even sometimes gave relief. In some cases at first no other symptom could be found. Sometimes the pupillary reflex or the kneejerk, made the diagnosis.

Tabes often develops with its first symptom as a bad neuralgia. This may occur without defect of the kneejerk or any pupillary symptom or ataxia. Often the diagnosis must be made on the pain alone. The peculiar lancinating character and the perfectly good health of the patient in the interval are the characteristic signs. At times when no other symptom is present there is a slight swaying of the patient when asked to stand with closed eyes. In healthy persons the swaying is usually anteroposteriorly. Tabetic patients have a lateral sway. A very good test of the muscular sense is to have the patient stand on the toes with the eyes closed. Often when no other symptoms are present there are patches of anesthesia on the thighs or in the genital region. Gastric crises are frequently a solitary symptom, and are often treated as indigestion for long periods. In one such case I found a girdle of anesthesia at the level of the umbilicus which confirmed the diagnosis of tabes.

Sometimes the first symptom is a sudden causeless swelling of the knee or the ankle-joint, or the swelling may occur after very slight injury. Sudden fracture of a long bone without very much cause is always suspicious. If the patient has any history of previous syphilis, the case is more than suspicious of tabes. Laryngeal crises may occur early, but I have seen them very rarely. Patients describe a tickling sensation in their throats, a feeling of suffocation with intense dyspnea, or they may even have an epileptic convulsion as the consequence of these feelings.

Treatment.—The canonical treatment is first to give a rigorous anti-syphilitic course for six to eight weeks to be followed by tonic treatment, these to be repeated once a year or oftener. In the intervals small doses of mercury and the iodids are to be administered. Antisyphilitic treatment is perhaps supposed to do good because tabes is milder now than it used to be. Perhaps the justification for its administration is found in the fact that tabes is always a post-syphilitic disease. No neurologist can say definitely that syphilitic treatment does good, yet we somehow are persuaded that it benefits certain patients. Some neurologists even feel that we can not refuse to give antisyphilitic treatment though there be no syphilis in the history. It is time to change our opinions in this matter. If there is a history of syphilis then antisyphilitic treatment is indicated. The best method of administering mercury in these cases is by hypodermic injection of $\frac{1}{30}$ to $\frac{1}{20}$ of corrosive sublimate once a day in 30 minims of water. This should be continued for from two to four weeks, according to the susceptibility of the patient. Then, potassium iodid should be given, beginning with 30-grain doses three times a day and increasing the dose but not to more than 330 grains per day. This is continued for four weeks and then an interval of six to eight weeks is allowed to elapse. If the patient does not stand hypodermics of mercuric chlorid well then inunctions should be given. These may be continued for six days, the patient then should take a bath, and continue the inunctions then for six days more, and thus persist in the treatment for four or five weeks, or until symptoms of mercurial saturation come on. Tonics should be used, especially phosphorus. Lukewarm baths from 94° to 96° F. are of a great deal of service. They may be given with or without a cool affusion at the end. These baths may contain some salt, or even the carbon dioxid baths may be used, and are often of service.

During the tonic period of treatment counterirritants may be applied to the spine. Patients should rest a good deal, should go to bed early, sleep late and take an hour's sleep in the afternoon. They should be much in the open air, they should take exercise by riding, not walking. Neither an excessive meat diet nor one consisting of vegetables only is good, but a judicious mixture of both. Patients suffer enough without depriving them of all consolation, so that if they use tobacco and alcohol in moderation these may be permitted. It is better to leave them at their business so as to furnish them an occupation for their mind and not forbid them amusements. The tonic and bath treatment should be repeated at least once a year.

When there is absolutely no syphilitic history then antisyphilitic treatment should not be given. There is no evidence of its ever doing any good and if the patient is delicate it may do harm. Tabes is practically a premature senility of the sensory neurons. The best thing at the beginning of treatment then is a two months' rest and bath treatment. The best specific for the disease is an absolutely regular life such as is followed in hospitals. While the poor get better in hospitals, the rich often experience no improvement at home. Institutional treatment is a real specific. Electrotherapy is also of service. Nitrate of silver, while of course not the specific that it was formerly claimed to be, sometimes does good. It should be given in quarter-of-a-grain doses three times a day. The combination of strychnin and morphin has been effective in my hands. Patients should usually be put to bed, while the strychnin is being administered. I give $\frac{1}{60}$ of a grain of strychnin and of morphin, and gradually increase the dose to $\frac{1}{30}$ of each at the end of a week and to $\frac{1}{20}$ at the end of three weeks. I rarely give more than this, though at times I have given as much as $\frac{1}{15}$

three times a day. I always diminish the dose gradually before leaving off its administration. I repeat the process after three months. It must be borne in mind that strychnine may increase the pains, and may even cause collapse, when of course it is contraindicated. It should not be given in very acute cases and it should not be given in absolutely stationary cases, nor in incipient cases.

While hot baths may be dangerous, lukewarm baths especially with a cold affusion are very serviceable. They would better be taken at home than at thermal springs. Patients meet others suffering from the disease at watering-places and learn too much about the affection for their own good. Some months spent at a hot spring often do good, notwithstanding, and there are springs here in America and in France as well as at Nauheim in which patients are distinctly improved.

Stretching of the cord has been practised. Patients should sit on a board, while the head is bent forward between the legs and this position maintained for eight or ten minutes. In some cases this relieves the pain, restores the sexual potency, and benefits the ataxia, so that it should be tried. With the Fraenkel treatment I have been rather disappointed. It is supposed to train the patients to walk again, but in most cases it seems to do very little good. Suggestion is an important feature in the therapeusis of tabes and must never be neglected. Patients must not be left to think that something can not be done for them. Assurance must be given them that time and patience will make their malady much more bearable and that an alleviation of their symptoms will be secured.

In the discussion DR. G. M. HAMMOND said: Tabetic symptoms are not necessarily due to an essential disease of the neurons. The affection may be a sclerosis, the overgrowth of connective tissue causing a secondary degeneration of the nervous element. The pathological change may be a syphilitic occlusion of the blood-vessels of the cord, thus depriving the nervous elements of their nutrition and thus cause them to degenerate. Antisyphilitic treatment is indicated. It does not improve the condition, but it prevents further changes. Moderate exercise constantly taken is the best for tabetic patients. Electricity of any kind never does any good. Hydrotherapy is of service, but drugs in the water are not of value. The skin does not absorb medicaments. Fraenkel's method of reteaching co-ordination has not been as beneficial in my experience as I expected. It is doubtful if it does more than teach patients to use their muscles under the direction of their eyes.

DR. JOSEPH COLLINS said: Tabes is not a disease of the spinal cord. The sooner we get rid of this idea the better. It is a disease of the peripheral sensory neurons, part of which happen to extend into the cord. I have no patience with those who still hold the theory that syphilitic vascular changes have anything to do with the degeneration of the nervous elements. No such vascular changes have ever been observed post-mortem in simple tabetic cases. I do not agree with Dr. Dana as to the neuropathic condition of patients in whom tabes develops. In one hundred cases that I have examined very carefully for this purpose I found no psychical or somatic stigmata of a nervous disposition. The trouble is that we do not know how to treat syphilis. The syphilographers tell us that they can cure syphilis, but years after their pretended cure come the nervous troubles that the neurologists see. I have no faith in antisyphilitic treatment for tabes itself. In cases where there is no syphilitic history I would as soon think of giving diphtheria antitoxin as of giving mercury, in fact much rather, for there might be some hope that it would act in opposition to the toxin in the system. We do patients harm, we put out their eyes, we hasten the development of ataxia symptoms by the depressing effect of mercurials. Tabes is not milder than it was. It is only that we see milder cases now that our diagnostic methods enable us to recognize its minor forms. Institutional treatment is the ideal. Even the poor patients on the islands here in New York get along much better than the rich patients for whom so much is done at our offices and at their homes.

The Fraenkel treatment has given excellent satisfaction in my hands. Some years ago a dancer became famous by appearing at a private dinner. A year later she came to my office practically helpless from locomotor ataxia. After treatment by the Fraenkel method she is now playing one night stands all over the country making her living once more as a dancer. Electricity is not curative, but it stimulates and encourages the patient and does good by suggestion.

DR. SACHS said that it must not be forgotten that the most noticeable lesion of tabes found post-mortem is the degenerative process in the cord. To remove the disease from the realm of spinal diseases would be a mistake. With regard to the treatment of tabes it must be borne in mind that there is often in the disease an element of active though not patent syphilis. In all such cases antisyphilitic treatment is of distinct benefit. Such cases are more frequent than is thought. Under this treatment the knee-jerks sometimes return and even the ataxia and other characteristic symptoms of tabes improve. Such improvement has been observed especially by Erb. Of course it is well understood that the disease that is helped by the mercury in these cases is really cerebrospinal syphilis.

Rest is a very good remedy for tabetics. In many cases the putting of the patients to bed for from three to four weeks will benefit them so much as to amply repay them even in their own estimation for the enforced idleness. Dr. Dana seems to underrate the value of the Fraenkel method of treatment for the incoordination for tabes. In my experience almost all the patients on whom it has been faithfully tried have been distinctly improved. Patients do not care whether the pathological condition on which their disease depends is modified or not, provided their symptoms are relieved. This is exactly what is accomplished by the Fraenkel training, for it enables them once more to control their movements.

DR. M. ALLEN STARR said that we are prone to accept exaggerated opinions in medicine. It seems too much to say that the disappearance of syphilis would mean the disappearance of tabes also. Only Moebius in

Germany now claims that tabes is due to syphilis alone and in every case. Even Erb has been able to find syphilis in only a little more than 89 per cent. of his cases. Personally I have found no reason to think that syphilis had existed previously in about 40 per cent. of my cases in private practice. Most of the patients were thoroughly reliable and intelligent, their confidence had been completely won and there was no reason left to think of deception on their part. Syphilis is undoubtedly of great importance in the etiology of tabes, but there are also other causes.

As to antisyphilitic treatment for tabes, it would seem to be entirely justified only when there is syphilis in the patient's history and some symptoms of active syphilis present. In Japan while syphilis is very common tabes is very rare. These facts I have on the most trustworthy Japanese authority. The most plausible reason for this escape of the Japanese from tabes would seem to be due to the fact that they bathe so freely. The peripheral nervous stimulation so frequently recurring tones up the central nervous system and enables it to withstand better the ravages of disease. Hydrotherapy should then be of the greatest service in the disease. Strychnin, however, has always in my experience increased the pain and I no longer use it.

DR. WILLIAM H. THOMSON said that the greatest source of errors of diagnosis in the initial stages of tabes is the occurrence of visceral symptoms. Gastric symptoms are especially liable to misinterpretation. Not long ago in a case that had been treated for a long while as dyspepsia, the only symptom was recurring attacks of excessively painful flatulence. The suspicious circumstance in these cases is the absolute freedom from symptoms in the interval. For the peripheral anesthesias and paresthesias, red pepper locally is of benefit. For the pains, acetanilid is very useful, especially combined with belladonna. Patients improve very much on cod liver oil. Artificial Nauheim baths, that is carbonic acid baths, do good. The rest cure is efficient but expensive. Patients come to us in order to enable them to stay at their work. When rapidity of pulse develops, the general condition will always be improved by the use of intestinal antiseptics. Tachycardia developing in the midst of any disease will usually be benefited by the same method of treatment.

REVIEWS.

ON THE STUDY OF THE HAND FOR INDICATION OF LOCAL AND GENERAL DISEASE. By EDWARD BLAKE, M.D., Member of the Royal College of Surgeons. Second Edition. New York: G. P. Putnam's Sons, 1899.

THE fact that a second edition of this little work should be called for proves one thing certainly: that the profession is still mightily interested in all things, even in special details, which go to aid in establishing a diagnosis. The author has added several new chapters to this edition, including a discussion, as to the causation of chloroform syncope. This is considered in the relation of respiration to the pulse. The tremors are also fully treated of, and some new plates have been added to illustrate the conditions described. A book like this makes for accuracy in diagnosis and as such it has a value distinctly its own; but we think the author has been a little over-zealous perhaps in finding more in the hand than disease actually presents, or, better, that his observations have been tinctured with prejudice. Be this as it may, the book is very interesting and should commend itself to a large audience.

THE DISEASES OF THE NERVOUS SYSTEM. A Textbook for Physicians and Students. By DR. LUDWIG HIRT, Professor at the University of Breslau. Translated, with permission of the author, by AUGUST HOCH, M.D., formerly Assistant Physician to the Johns Hopkins Hospital, now to the McLean Hospital, Waverly, Mass., assisted by FRANK R. SMITH, A.M. (Cantab.), M.D., Instructor in Medicine in the Johns Hopkins University, with an Introduction by WILLIAM OSLER, M.D., F.R.C.P., F.R.S., Professor of Medicine in the Johns Hopkins University, etc.. New York: D. Appleton and Company, 1899.

AFTER reading this work, one cannot fail to be impressed by the vast clinical experience of the author. It teems with original observations throughout and shows thorough familiarity with nervous diseases. However, nearly six years have elapsed since Hirt penned the introductory lines to the second German edition—of which the book before us is a translation, and during this time much has been written upon the subject of which no mention has been made. This is particularly noticeable in the discussion of myxedema and acromegaly, both subjects being dealt with in far too cursory a manner.

Following each subject is a list of the literature, arranged in a chronological order, ending with the year 1894. This, as far as it goes, enhances the value of the book as a work of reference. As a text-book for students we cannot commend it; as a reference work it has its place.

The book contains a large number of woodcuts, some of which are ludicrously crude in these days of superbly illustrated medical works. They are, however, for the most part, satisfactory, and add materially to the value of the book.

REPORT ON THE INVESTIGATIONS INTO THE PURIFICATION OF THE OHIO RIVER WATER FOR THE IMPROVED WATER-SUPPLY OF THE CITY OF CINCINNATI, O. Made by the Board of Trustees, Commissioners of Water Works. Cincinnati Commercial Gazette, Job Print, 1899.

THE volume before us is another one of a series of exhaustive reports upon the question of improved water supply for large cities. The investigations carried on at Cincinnati are similar to those carried on at Louisville the report of which was reviewed in these columns some months ago. At Cincinnati, Ohio River water is consumed and the source of the two cities being practi-

cally the same, we would naturally expect the same treatment, which, in short, consists of a modification of the English system. In this special case subsidence, addition of coagulant (sulphate of aluminium), and further subsidence before filtration through American "mechanical" filters is the method practised. We find the relative cost of the method here described to be about 3.8 per cent. cheaper than the improved English method. We are pleased to note that the new intake is above the discharge center of "thirty-two small sewers and drains," below which the old intake was situated. The book is clearly written, and is embellished by many plates of the experimental plant and other structural matter, all of which are drawn to scale.

INTERNATIONAL CLINICS. A quarterly of clinical lectures on Medicine, Surgery, etc., and specially prepared articles on Treatment and Drugs by Professors and Lecturers in the leading Medical Colleges. Edited by JUDSON DALAND, M.D. Volume III. October, 1899. Philadelphia: J. B. Lippincott Company.

THE feature of this issue of the International Clinics is the series of articles on Treatment. While American medical men generally will not agree with Professor Stintzing of Jena, as to the treatment of incipient appendicitis, it, at least, is interesting to find that he has the courage of his convictions in the matter of treating appendicitis with opiates. For instance, he says, "our patient is under the opiate treatment, which is, as you know, we consider, the only rational internal treatment under the circumstances. He has not had a stool before in eleven days and we have not considered it necessary to give him a purgative or take any means to secure an evacuation, as we felt sure that nature herself would take the best and most natural method to clear the fecal matter from a practically normal large intestine as soon as we had ceased quieting peristaltic movement by opiates.

Professor Grancher of Paris, the well known specialist on tuberculosis, presents the third of a series of clinics on the treatment of tuberculosis. Professor Ernest Kuester of the University of Marburg has a very interesting clinic on the surgical treatment of tuberculous nephritis, in which he suggests the examination of the other kidney by an exploratory incision whenever it has been decided to remove a tuberculous kidney.

Professor Helferich of the University of Griefswald, who lately accepted Professor Esmarch's chair as professor of surgery at the University of Kiel, reviews the treatment of recent and old fractures of the patella. What is novel in the clinic is the suggestion, original with Professor Helferich himself, that in old cases of fracture of the patella where the fragments are widely separated and contracture of the quadriceps is too great to allow of the hope of bringing the fragments together, pieces of sterilized bone should be inserted in the gap, between the fractured ends. This makes an unshapely patella, in certain respects, but as no two patellas are very much alike it is not noticeable, while the pully function of the quadriceps over the knee-joint is restored.

Dr. A. Goldscheider of Berlin, presents a most practical review of the treatment of tabes dorsalis. The Fraenkel treatment of tabes, by training the patients until they regain their coordination, is given with special detail. Certain features introduced into this system of treatment by Professor Goldscheider himself are of particular interest. Exercise for hemiplegics while in the bath is a very practical bit of treatment which Dr. Goldscheider introduces into the clinic in passing.

Professor Gerhart of Berlin has a very interesting contribution on apoplexy during pregnancy. Professor Gerhart does not believe, as most of the French school do, that the heart is hypertrophied during pregnancy; nor does he believe that there is any essential reason in pregnancy itself why apoplexy should occur more frequently at this time than at any other. Its occurrence is due always to secondary factors.

A note on epicondylalgia, that is the pain which occurs in the group of muscles attached to the epicondyle by Professor Bernhardt of Berlin should prove very timely just now. The functional neurosis called by this long name is due to certain strains on the forearm, such as occurs in delicate persons from holding up an umbrella, or in these modern days may come from holding up a heavy set of skirts.

THERAPEUTIC HINTS.

For Acute Pharyngitis.—

1. ℞ Potassi chlorat. . . . gr. xv
   Ol. menth. piper . . . gtt. ii
   Ext. krameriæ . . . gr. xv
   Ext. glycyrrh. . . . ʒ iiss.

M. Ft. troch. No. xxx. Sig. One troche every two hours.

2. ℞ Ammonii chlor. . . . gr. xxx
   Pulv. ipecac. . . . . gr. ii
   Pulv. capsici . . . . gr. ½
   Ext. glycyrrh. . . . ʒ ii.

M. Ft. troch. No. xx. Sig. One troche every two hours.—*Lefferts.*

For Prolonged Attack of Hiccoughs —

℞ Strychninæ sulphat. . . . gr. $\frac{1}{40}$
Camph. monobrom. . . . gr. ½
Hyoscyaminæ . . . . gr. $\frac{1}{60}$.

Sig. For one dose. Repeat according to indications.

Medication in Gastric Dilatation.—

1. ℞ Bismuthi salicyl. } aa. . . ʒ iiss
   Magnesiæ
   Sodii bicarb.

M. Div. in chart. No. xxx. Sig. One powder after each meal.

2. ℞ Bismuthi salicyl. } aa. . . ʒ iiss
   Salol
   Magnesiæ

M. As above.

3. If diarrhea be present:

   ℞ Bismuthi salicyl. } aa. . . ʒ iiss
   Salol

M. As above. *Dujardin-Beaumetz.*